FOUNDED IN 1856

RAILWAY AGE

AUGUST 20, 1949

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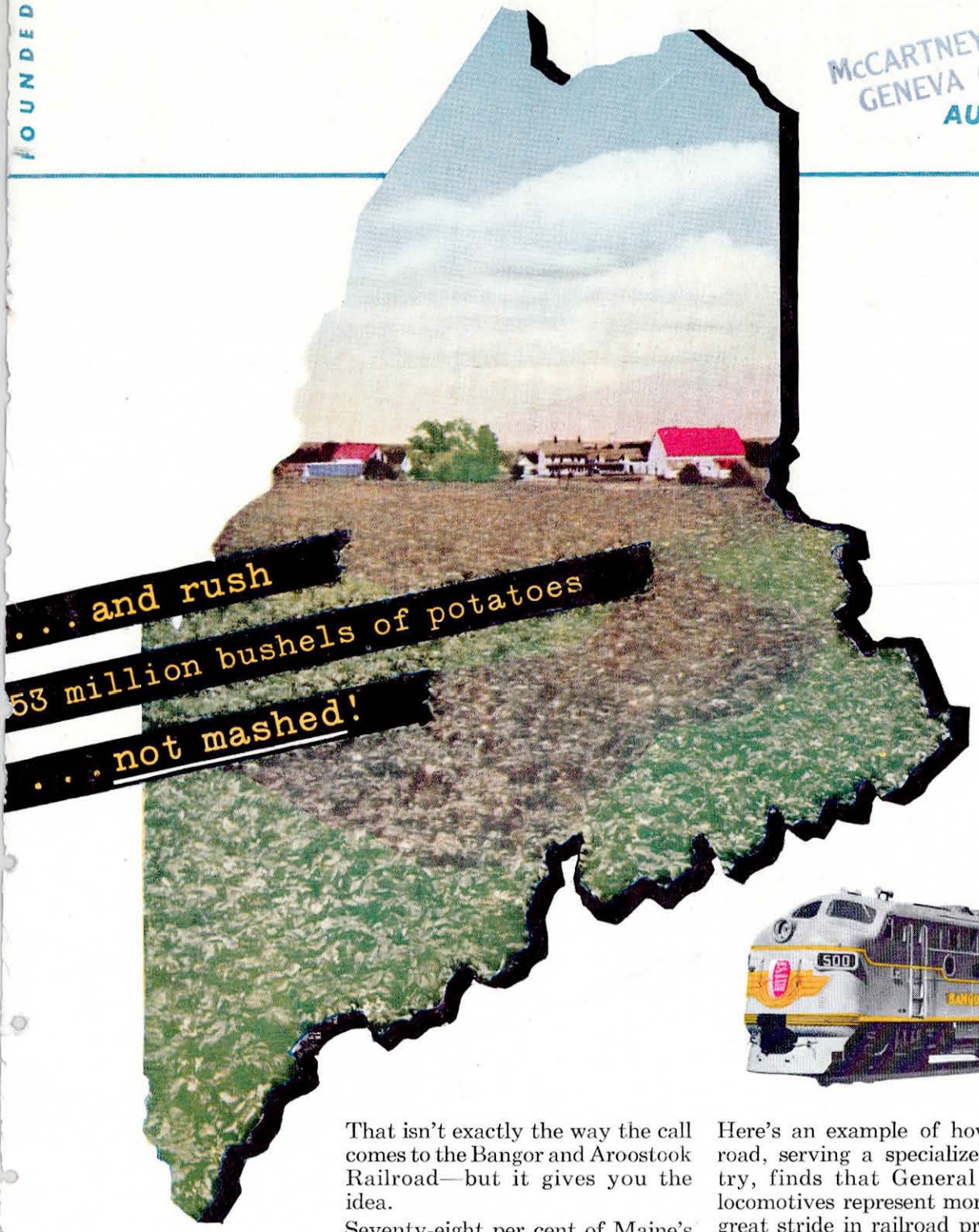


That isn't exactly the way the call comes to the Bangor and Aroostook Railroad—but it gives you the idea.

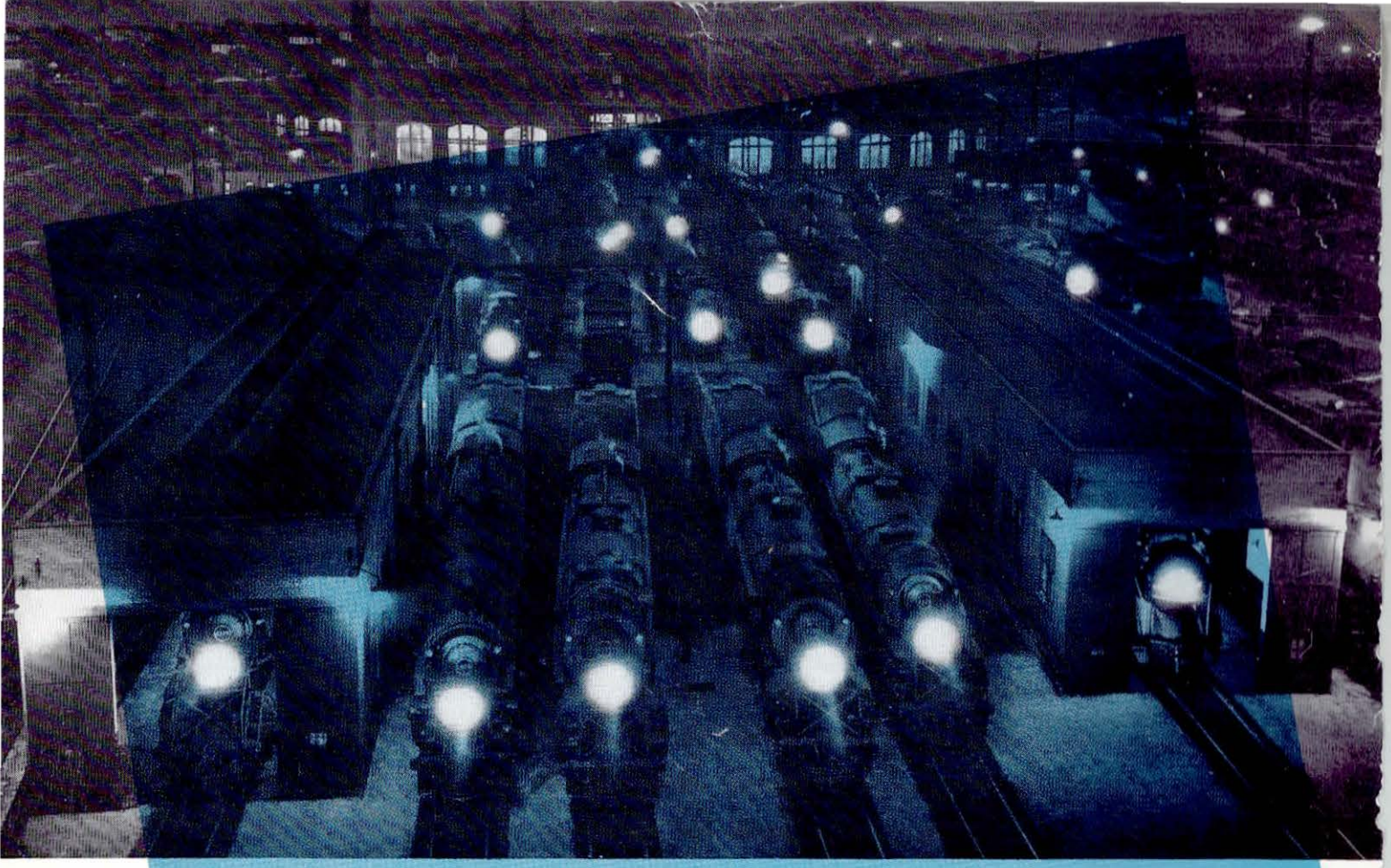
Seventy-eight per cent of Maine's far-famed potato crops—totaling over 68 million bushels this year—starts to market in B. A. R. trains powered by General Motors Diesel locomotives.

Here's an example of how a railroad, serving a specialized industry, finds that General Motors locomotives represent more than a great stride in railroad progress—that the faster, more dependable, more economical operation of this modern motive power also contributes mightily to the economic advancement of the area it serves.

GENERAL MOTORS LOCOMOTIVES

ELECTRO-MOTIVE

DIVISION OF GENERAL MOTORS — LA GRANGE, ILL. *Home of the Diesel Locomotive*



Nalco "N" STEAM CONDITIONER

The Superior Anti-Foam

NALCO "N" CHARACTERISTICS

- Furnished in convenient ball or powder form.
- Applied either direct to tender tanks or through standard proportioning equipment.
- Cuts blowdown required to only that necessary for sludge removal.
- Effective in boilers many times longer than previous antifoam materials.
- Stops foaming without need for frequent water changes and boiler washings.
- Conforms to latest recommendations for boiler metal protection.

EXTENSIVE use for over a year by railroads of the United States and of certain other countries has definitely proven the great effectiveness of Nalco "N" as an anti-foam material.

The first big improvement in anti-foams was Nalco "D", a polyamide type of material. It did great work and Nalco is proud of this contribution to improved locomotive operation, but now it gives way to the most important development of all in anti-foams —Nalco "N".

Nalco "N" is so effective that locomotives now using it are operating with no definite dissolved solids limits—and no foaming.

Blowdown reduction—often as high as 75%—results in sizable fuel savings. Reductions in terminal handling time and locomotive maintenance have reduced expenses and increased availability, thus adding to the total savings realized from the use of this modern type of anti-foam.

NATIONAL ALUMINATE CORPORATION
6200 West 66th Place • Chicago 38, Illinois
Canadian inquiries should be addressed to Alchem, Limited, Burlington, Ontario

A Nalco PRODUCT ...Serving Railroads through Practical Applied Science

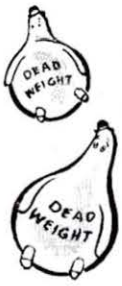
Published weekly by Simmons-Boardman Publishing Corporation, Orange, Conn. Executive Offices, 30 Church Street, New York 7, N. Y. Entered as second class matter at Orange, Conn., under the act of March 3, 1879. Subscription price $6.00 for one year, U. S. and Canada. Single copies, 50 cents each. Vol. 127, No. 8.

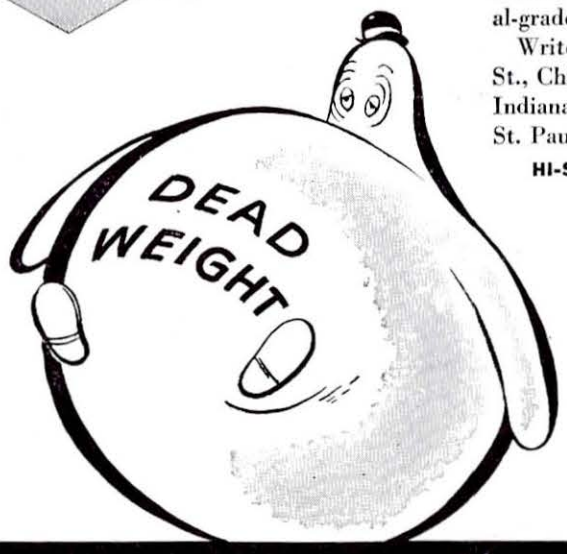
REDUCE SECTIONAL THICKNESSES

without sacrificing strength

Squeeze the "DEAD WEIGHT" out of Your Product

INLAND STEEL





Because of Inland HI-STEEL's superior strength-to-weight ratio, HI-STEEL sections can be up to 25% thinner — and *lighter* — than the same sections made of ordinary structural-grade carbon steel. This means less dead weight and greater efficiency for your product. And, since less steel is used, you can produce one-third more units from every ton of HI-STEEL — at little or no increase in cost per unit. Your lighter HI-STEEL product will last longer, too — for HI-STEEL has about five times the atmospheric corrosion resistance of ordinary structural-grade carbon steel and is far more resistant to abrasion.

Write for booklet. INLAND STEEL CO., 38 S. Dearborn St., Chicago 3, Ill. Sales Offices: Chicago, Davenport, Detroit, Indianapolis, Kansas City, Milwaukee, New York, St. Louis, St. Paul.

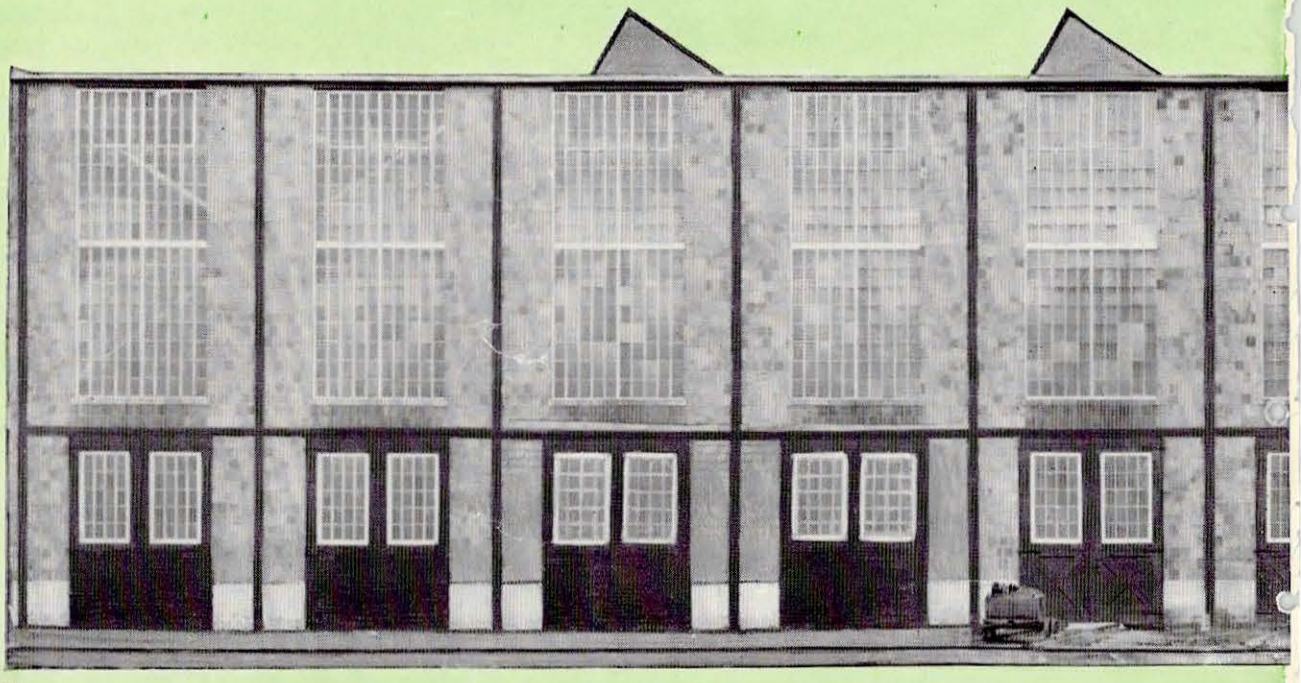
HI-STEEL meets the requirements of SAE Specification 950

INLAND HI-STEEL

REG. U. S. PAT. OFF.

THE LOW-ALLOY HIGH-STRENGTH STEEL

Its LOW MAINTENANCE



Alco GE

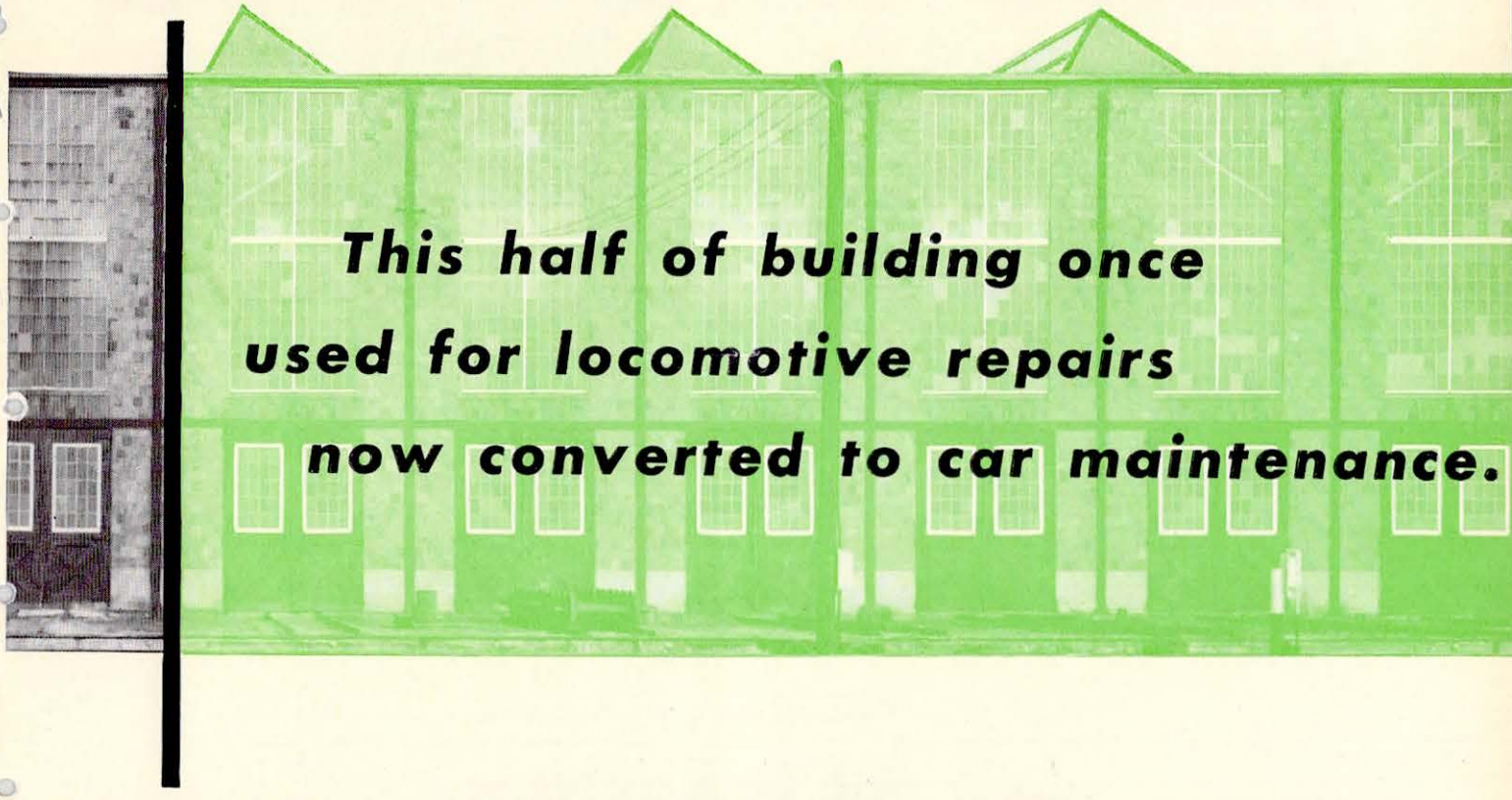
AMERICAN LOCOMOTIVE

Recently, Mr. S. T. W. Green, Vice President and General Manager of the Lehigh and New England Railroad, told us, "We no longer need to build a new car shop because our new Alco-G.E. diesel-electrics have permitted a tremendous reduction in space required for locomotive maintenance and repair. In fact, we dispensed entirely with our need for the engine house and require only one-half our former locomotive back shop. The other half of the back shop is now used exclusively for repairing and rebuilding railroad cars. Thus, in a very real sense, Alco-G.E., through these locomotives, gave us a car shop."

The L. & N. E. placed the order for their Alco-G.E. locomotives as the result of a motive-power study made in 1947. This study was based only on operating and maintenance savings of the Alco-G.E. units. The actual application of Alco-G.E. locomotives provided an unexpected dividend by saving a planned capital expenditure for a new car shop.

Diesel-electric operating and maintenance savings are a known quantity on most railroads today. Extra dividends, such as those realized on the L. & N. E. may be available to your railroad. Your Alco-G.E. representative is prepared to help you find them.

gave us a CAR SHOP



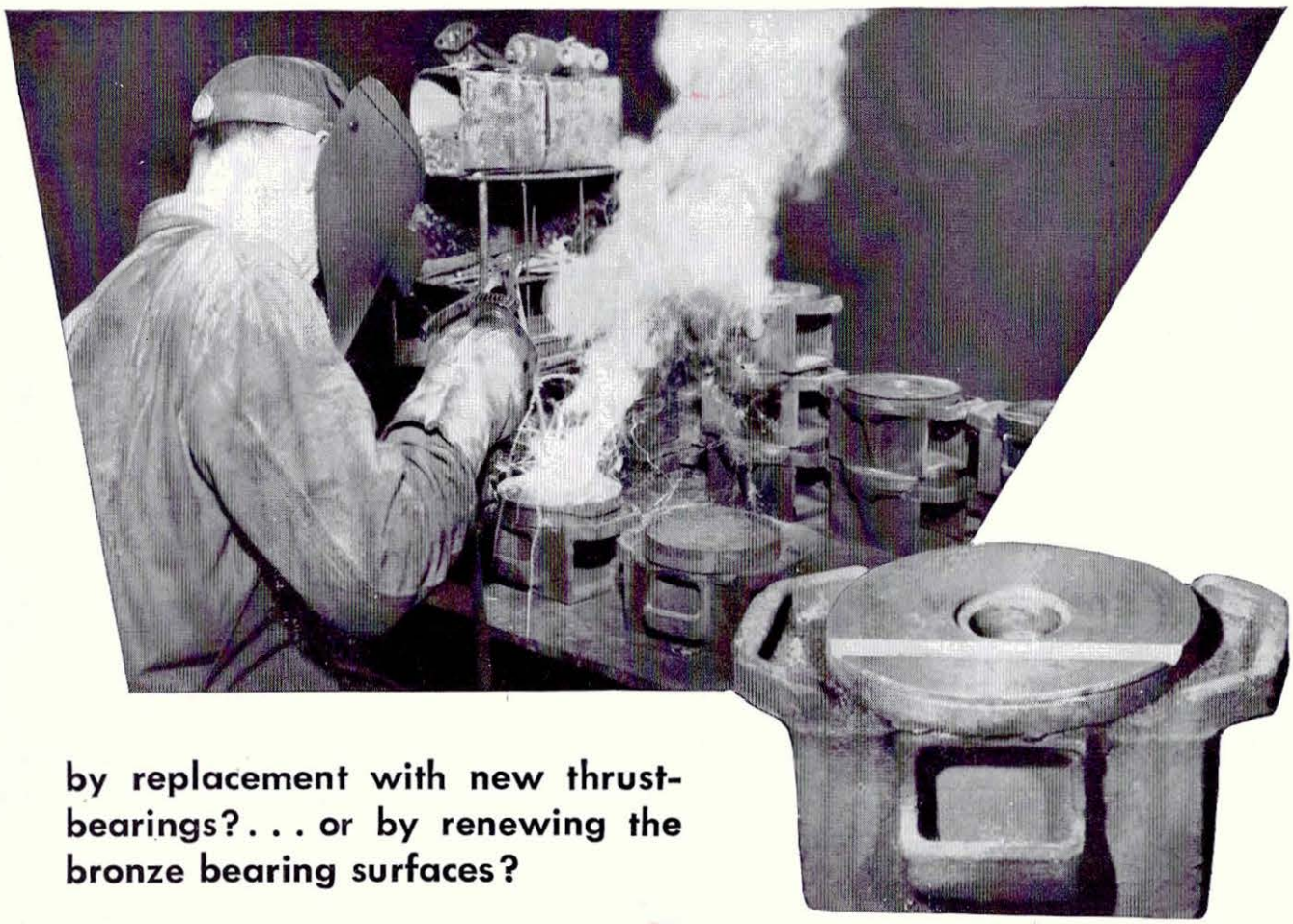
and GENERAL ELECTRIC

IN CANADA Alco GE IS ALCO GE

118-228

What's the best way

to replace worn diesel wheel end thrust-bearings?



by replacement with new thrust-bearings? . . . or by renewing the bronze bearing surfaces?

Airco Railroad specialists working with railroad men have found reclamation by metallic arc welding to be 35% less costly than a new bearing.

In a 60 minute work-cycle — 20 minutes building-up the worn surface, and 40 minutes machining — the worn bearings can be brought back to standard, using this low-cost, efficient technique:

First, on preparation for welding, a carbon disc is inserted in the speedometer cable hole. Then the bearing surface is built-up with an Airco No. 19 lead bronze electrode. This process requires three passes, and consumes four electrodes per pass. The carbon discs are then removed, and the bearing surfaces machined. Finally, the oil hole is drilled, and the oil slot cut. The bearing is now as good as new.

For more information about this and other Diesel welding applications, write your nearest Airco office for a copy of, "Diesel Locomotive Maintenance Welding." (In Texas: Magnolia Airco Gas Products Co. On West Coast: Air Reduction Pacific Co.)

Costs Come Down Under The Airco Plan

AIRCO **AIR REDUCTION**

Offices in Principal Cities

Headquarters for Oxygen, Acetylene and Other Gases . . . Carbide . . . Gas Welding and Cutting Machines, Apparatus and Supplies . . . Arc Welders, Electrodes and Accessories

Not Over-Sprung

...NOT UNDER-SPRUNG!

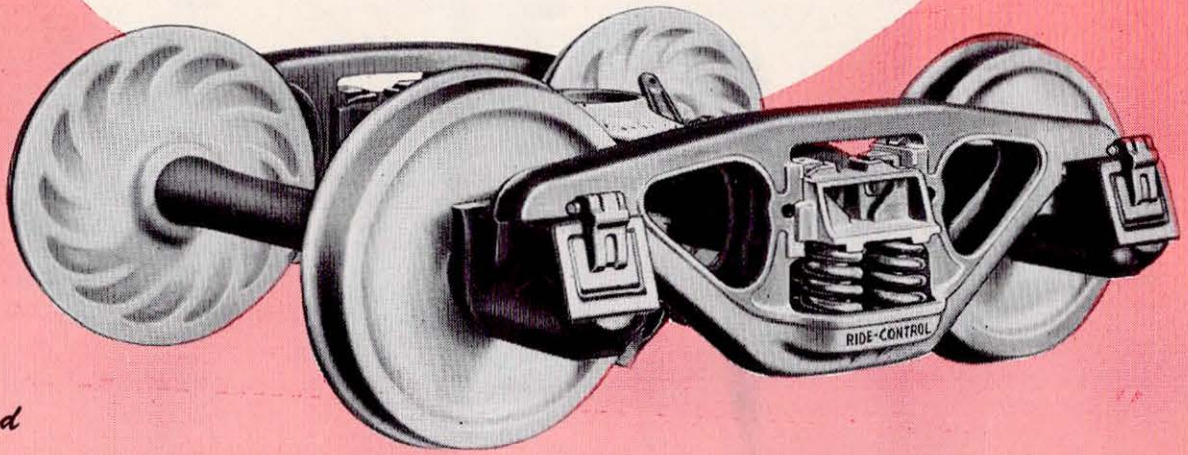
● Without proper "springing," no truck can deliver the *best* in riding qualities. Springs should be soft and yet embody *abundant* travel reserve to gently cushion all dynamic shocks.

The original A.S.F. spring recommendations—results of careful designing and intensive service testing—have now been confirmed in regular freight car service by actually *billions* of properly cushioned car miles.

That's why these *original* recommendations for 2½", 3 1/16", and 3 11/16" long-travel springs . . . *lengths pioneered by American Steel Foundries* . . . have now become A.A.R. standards for all built-in-snubber types of trucks. Well-designed "springing," like proper control, *cannot* be soundly compromised.

A-S-F *Ride-Control* TRUCK

CONSTANT FRICTION CONTROL
LONG SPRING TRAVEL

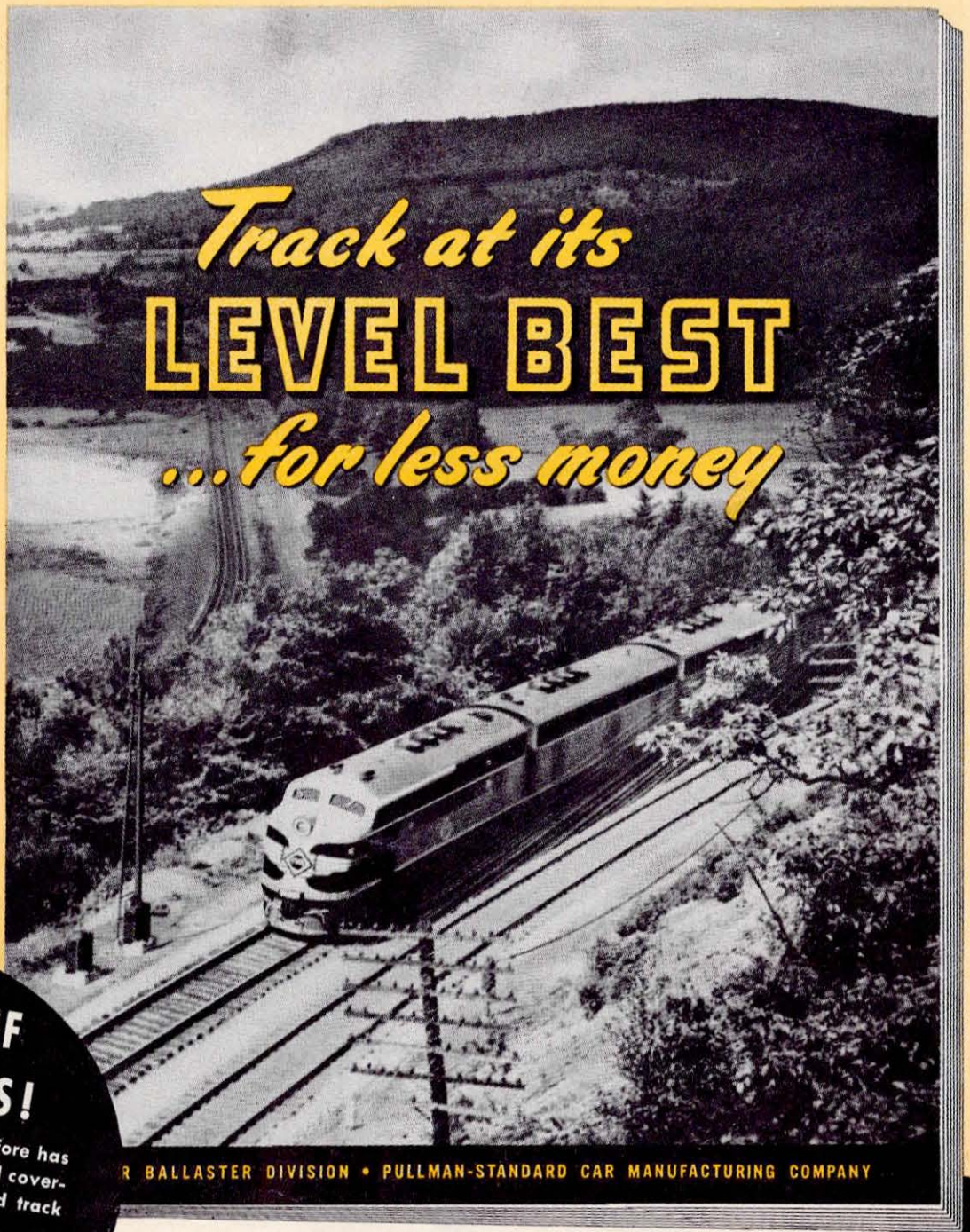


Visit the Chicago Railroad Fair

AMERICAN STEEL FOUNDRIES

MINT-MARK OF ○ FINE CAST STEEL

Book-of-the-Year



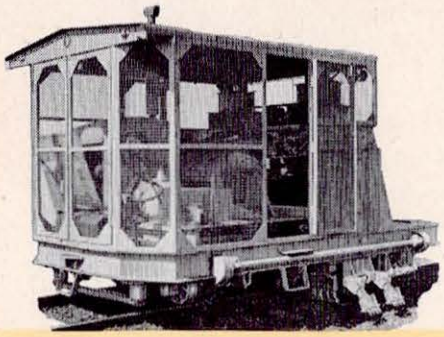
JUST OFF THE PRESS!

A first edition! Never before has a brochure been published covering *completely* mechanized track maintenance.

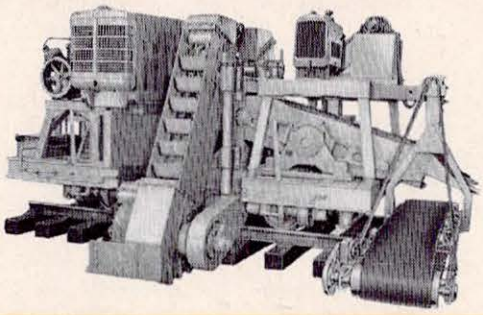
MAIL THE COUPON ...TODAY!

for Railroad Men!

THE FACTUAL STORY OF THE...



POWER BALLASTER (Tamper)



POWER BALLAST CLEANER

POWER TRACK CRIBBER

- ***How Your Railroad can save Thousands of Dollars in Track Maintenance costs!***
- ***How <u>One</u> <u>Machine</u> can tamp 450 to 500 Track Feet Per <u>Hour</u>!***
- ***Case Histories! Facts! Figures!***

REQUIRED READING! That is what many railroad men who are facing the problems of the new 5-day week are saying about Pullman-Standard's new brochure. It tells the story of the application of a proved machine mass-production system to track maintenance work . . . for the first time in the history of railroading!

This booklet contains dozens of helpful photographs, detail drawings, and interesting descriptions. It shows you exactly how the Pullman-Standard Power Track Cribber, Ballast Cleaner, and Power Ballaster operate; how a few men can do the work of many, and do it better as well as cheaper.

This 24-page brochure contains actual facts and figures to illustrate how a steadily growing number of railroads are realizing savings of $600, $800, even $1,000 per mile, in each of these maintenance operations.

You will want your own copy of "Track at Its Level Best . . . for Less Money." Ask for it today.

Pullman-Standard
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POWER BALLASTER DIVISION
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NEW YORK 17, 52 Vanderbilt Avenue
PITTSBURGH 19, 1115 Gulf Building
SAN FRANCISCO 4, 2910 Russ Building
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Pullman-Standard Car Manufacturing Co.
Power Ballaster Division
79 East Adams St., Chicago 3, Illinois

Please send me a personal copy of your new brochure, "Track at Its Level Best . . . for Less Money."

Name.....

Company.....*Title*.....

Address.....

City.....*Zone*....*State*.....

What to do About the 40-hr. Week?

Survey shows roads planning intensified supervision, departmental reorganization and greater mechanization

Although mechanization, labor-aiding tools and equipment formed the first post-war approach of the railways in combatting rising costs, the importance of these factors has increased considerably with the approach of the impending 40-hour week. General preparations have commanded the attention of engineering and maintenance men for weeks and months. Never in the history of American railroading have such men concentrated so much on developing greater efficiency within their own departments. The great problem is, in effect, how to counteract the new requirements that virtually will involve a reduction of 16 per cent in working time and a boost of 20 per cent in hourly wages.

How do the roads plan to cope with the problem? After long and careful studies, plans have been developed for (1) departmental reorganization, (2) intensified supervision and (3) a far more extensive use of power tools, work equipment and labor-aiding devices.

During these studies many ill-considered and half-forgotten practices have come to light. One road, for example, after a thorough review has decided upon complete reorganization of its maintenance department. Gangs are being enlarged in a general plan to increase efficiency and to bring supervisory costs in line. Another large road has completed an analysis of each job to determine which, under modern methods, may be abolished and how others can be made more efficient. Although several railways foresee the need of many additional employees, it is quite apparent that supervision will be tightened all along the line in a bid for greater efficiency.

Probably the most significant development of the entire process of review and analysis has been the attention that has been directed to modern power tools, work equipment and better materials. For instance, one chief engineer's report to his management declares, that in the estimation of their division engineers, workmen are now producing at only 75 to 80 per cent of their pre-war efficiency. The report suggests the use of additional specific labor-aiding tools and equipment as a means of stepping up production 10 to 15 per cent within the near future and eventually to pre-war levels.

The same report adds that the use of better materials also may be relied upon to increase maintenance efficiency, citing for example, that when section labor rates were 25 cents per hour, a certain type of ballast at 25 cents per cu. yd. was economical even though replacement was necessary every three or four years. Now, with that same quality of ballast costing 60 cents per cu. yd. and labor $1.16 per hour, the time has come to consider better ballast that will last much longer under heavy traffic at high speeds. The report also points out the advisability of considering the use of more ties per mile of track and suggests a serious study to determine whether additional ties would provide better track and reduce maintenance costs.

Other studies clearly have indicated that high labor costs will justify many more projects for stabilizing roadbed. Pressure-grouting, better drainage and other procedures may be depended upon to reduce the number of man-hours required to maintain track.

An officer of one of the largest railway systems recently declared that the railways have remained solvent only because of their large investment in labor-aiding devices and he went on to stress the need for adopting improved operating methods. Hundreds of these procedures, devices and materials are thoroughly described in the new Railway Engineering & Maintenance Cyclopedia, an invaluable reference book for executive, operating, purchasing and engineering officers. The chief engineer of a large western system recently declared: "It is part of our standard office information and to me it is unthinkable not to have an up-to-date Cyclopedia." Many roads have ordered 50 to 100 as working tools for their engineers, roadmasters and supervisors.

"Here's the practical railway book that every railway maintenance man needs", said an engineer of maintenance. "I refer to it almost daily and seldom have a conversation with any of my roadmasters without referring to it." Already more than 6,000 copies have been shipped all over the United States and Canada. Because the edition is limited, we suggest prompt action. Better add it to your library at once and arrange for an order to place a copy in the hands of every key man on your staff. It's the only authoritative book of its kind.

Attractively bound in rich maroon Fabrikoid, 1220 pages, 9 in. x 12 in., single copies $8.00 postpaid in the U. S. and Canada. Write for quantity discounts in lots of six or more. Simmons-Boardman Publishing Corp., 79 W. Monroe St., Chicago 3, Ill.

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...Get 500 to 1500 sets from one loading of carbon paper...with the NEW UNDERWOOD *All Electric* FANFOLD WRITING MACHINE

Apply production-line speed and economy to all of your multi-copy forms . . . right in your own office . . . with the new Underwood All Electric Fanfold Writing Machine.

You'll find this modern machine saves you time and money all along the line.

First, it eliminates non-productive operations. One loading of Continuous Multi-Copy Forms and Continuous Carbon Paper in rolls or long sheets lasts for many days. The forms and carbon paper, in perfect alignment, are always in the machine ready for instant use, thus making possible uninterrupted typing without the usual non-productive operations required when using loose forms.

Next, substantial savings in the consumption and cost of carbon paper are effected. The carbon paper, either in long sheets or in rolls, is used again and again for many sets of forms until it has served its full utility. Thus, carbon paper costs are frequently cut in half.

Finally, the new Underwood All Electric Fanfold Writing Machine has been especially designed for multi-copy work. It incorporates every feature essential to maximum operating simplicity and speed, including Underwood's renowned ALL ELECTRIC KEYBOARD.

Just ask your nearest Underwood representative to prove how this machine will pay for itself in a matter of months. Or, fill in and mail the coupon for complete descriptive folder *today!*

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Accounting Machines . . . Typewriters . . . Adding Machines . . . Carbon Paper . . . Ribbons

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What makes 'em all alike?

The final drive's Electric!

They may *look* different . . . their prime movers *are* different, but their final drive is *the same.*

Diesel electric, steam turbine electric, gas turbine electric and conventional electric—all depend on electric transmission because—regardless of the power source—electric transmission means:

Constant rail hp over normal operating range of the locomotive . . . Multiplicity of lightly-loaded driving axles, with maximum locomotive weight used for adhesion . . . Exceptionally high drawbar pull—both for starting and running . . . Increased train tonnage . . . Easier handling of heavier trains . . . Marked reduction of helper service over ruling grades . . . Electric braking on long, descending grades.

Consider these advantages of electric motive power with an eye toward improvement of all phases of your railroad operation. Get in touch with your nearby Westinghouse office, or write Westinghouse Electric Corporation, P. O. Box 868, Pittsburgh 30, Pa. J-95147

YOU CAN BE **SURE**.. IF IT'S

Westinghouse

Write for the new, authoritative presentation of modern motive power. Ask for B-3706.

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PARTNER IN

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Aboard L & N's *Humming Bird*

DIXIE CUPS

Another sleek streamliner has joined the growing fleet of new passenger trains equipped with modern Dixie equipment and clean, safe Dixie Cups. Yes, the L & N, too, has found from experience that passengers readily appreciate this service they recognize . . . the service that bears the name Dixie Cups . . . the world's best known paper cups.

Too, up-to-the-minute Dixie equipment affords the railroads an exclusive flexibility: Dixie Dispensers have interchangeable cup adapters designed to accommodate either flat-bottom Dixies or cone-shaped Vortex Cups . . . in either large or small sizes. This exclusive feature makes Dixie Dispensers the *natural* choice among leading railway executives and designers.

DIXIE RECESSED DISPENSER typical installation. Fits flush in bulkhead. Streamlined to match interior design. Exclusive interchange feature permits use of either flat-bottom Dixies or cone-shaped Vortex Cups.

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Trim, smart, easy to mount anywhere. Clear plastic window signals refill need. Holds flat-bottom Dixies or cone-shaped Vortex Cups . . . either large or small sizes.

SPACE SAVER

Attractive small dispenser. Requires minimum space. For use in roomettes, bedrooms, compartments, etc.

● **SPECIAL IMPRINTING OF CUPS WITH YOUR INSIGNIA, SLOGAN, NAME OR OTHER MESSAGE TO YOUR ORDER. Write to Railroad Department, Dixie Cup Company, Easton, Pa.**

DIXIE CUP

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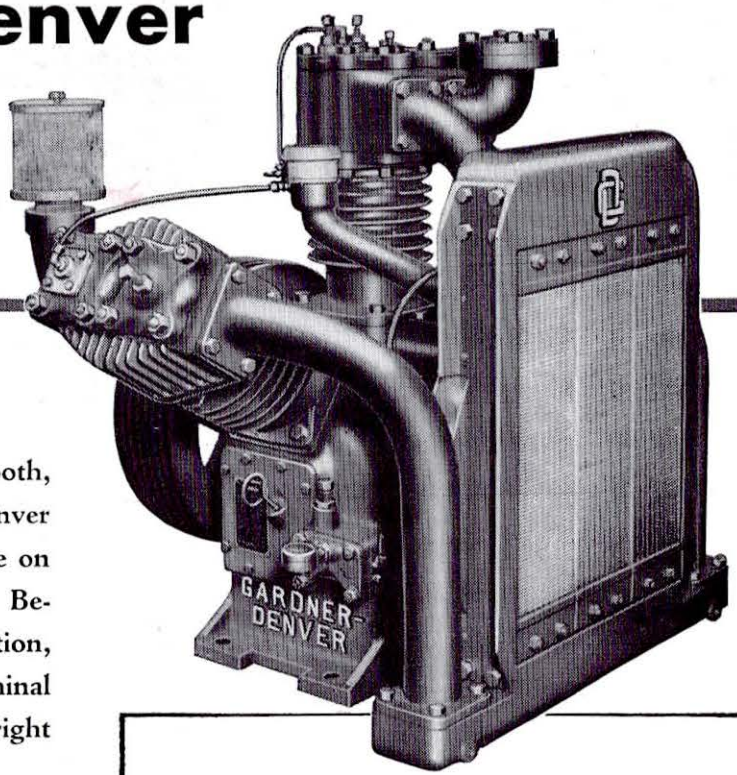
"Dixie" and "Vortex" are registered Trade Marks of the Dixie Cup Company.

STANDARD IN RAILROAD SERVICE FOR OVER 30 YEARS

There's no vibration problem with a *Smooth Running* Gardner-Denver "WX"



Gardner-Denver "WX" Two-Stage, Air-Cooled Compressor—built in capacities from 142 to 445 cubic feet displacement per minute.

Because it's carefully balanced for smooth, quiet operation, the Gardner-Denver "WX" Air Compressor is ideal for use on rolling stock — for air brake service. Because it requires practically no foundation, the "WX" is readily installed in terminal shops, or at signal blocks along the right of way.

The smooth running qualities of the "WX" are the result of quality engineering features such as: drop-forged alloy steel crankshaft, accurately counterbalanced and supported on two adjustable Timken tapered roller main bearings—lightweight automotive type pistons, with two small bore low pressure cylinders balanced against each high pressure cylinder for reduced inertia loads.

For complete information, write Gardner-Denver Company, Quincy, Illinois.

In Canada: Gardner-Denver Company (Canada) Ltd. Toronto, Ontario.

Other "WX" advantages that assure long and reliable service:

- ★ Sustained high efficiency of two-stage compression
- ★ Quiet, efficient and durable plate type valves—"Air-Cushioned"
- ★ Extra deep cooling fins for rapid heat dispersion
- ★ Large radiator type, fan-cooled intercooler
- ★ Positive, force-feed pressure lubrication
- ★ Available for any type of drive

GARDNER-DENVER **SINCE 1859**

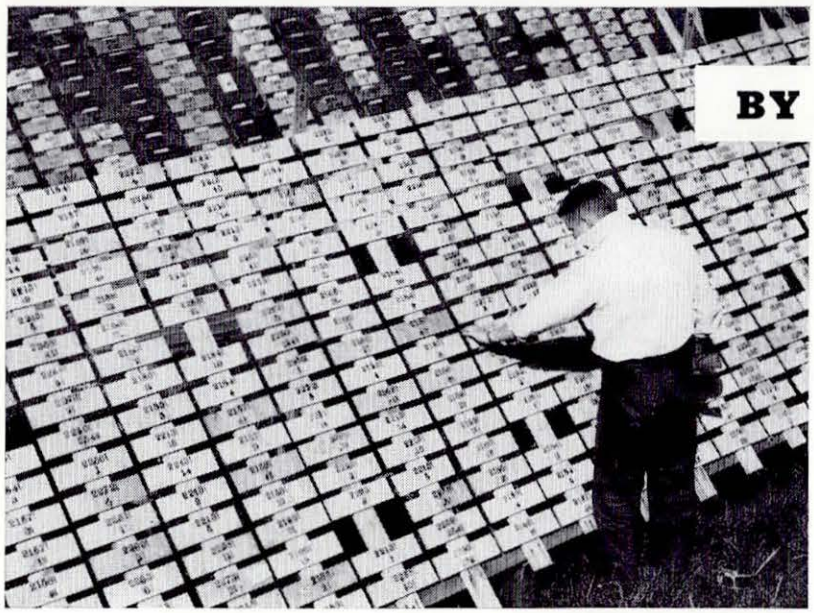
SEAB

The construction and delivery of Budd all-stainless steel railway passenger cars continues to accelerate. During June, among other deliveries, Budd completed six new six-and-ten sleeping cars for the Seaboard Air Line Railroad. The Budd Company, Philadelphia 32.

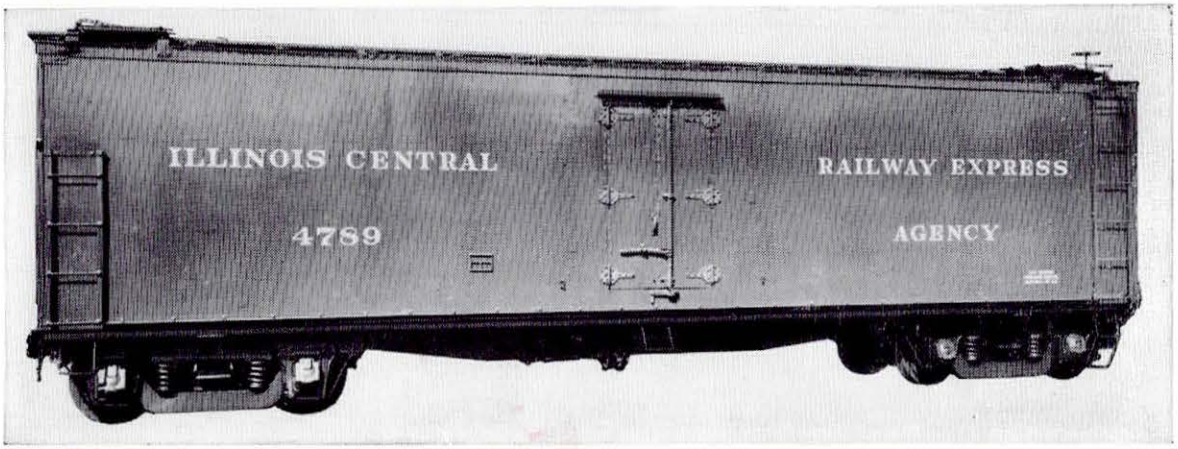
Budd

Exterior Plywood's Durability *Proved*

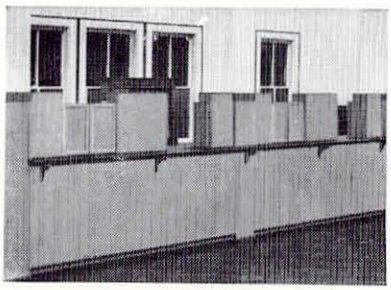
BY 10,000 TEST PANELS



Completely unprotected—unpainted, unstained, unvarnished—more than 10,000 test panels of Exterior-type Douglas fir plywood have been subjected to the rigors of rain, snow, sun, wind, sleet and hail. The Douglas Fir Plywood Association field test-fence—established 10 years ago—gives Exterior plywood the kind of punishment never found in properly applied construction use . . . proves plywood's ability to stand up under every kind of weather. Laboratory tests, too, constantly check plywood's quality and performance.



...and on more than 45,000 reefers!



***Interior*-Type Plywood Serves Railroads, Too!**

Interior-type Douglas fir plywood is bonded with highly moisture-resistant (but not waterproof) glues. It serves as a strong, rigid, durable material for boxcar lining, for interior car finish, for station interiors, booths, counters, partitions, sheathing and concrete forms. For complete data on both types of Douglas fir plywood, write the Douglas Fir Plywood Association office nearest you: Tacoma Bldg., Tacoma 2, Wash.; 848 Daily News Bldg., Chicago 6; 1232 Shoreham Bldg., Washington 5, D. C.; 500 Fifth Ave., New York City 18.

FOR THE siding, lining, and ceiling of reefer cars . . . for bunkers, bulkheads and inner lining . . . Exterior-type Douglas fir plywood is definitely a preferred material. The large, light, "engineered" panels reduce overall weight, are easy to handle and "work", can be installed with fewer fastenings, assure long service and a minimum of upkeep. Exterior is ideal for siding box cars, work cars, camp cars and other rolling stock, too. All in all, this modern, split-proof, puncture-proof material has been used in building or rebuilding more than 100,000 cars of every type. The EXT-DFPA "grade-trademark" on every panel assures positive identification of Exterior plywood—the type bonded with completely waterproof adhesive for permanent exposure to weather or water.

® EXT-DFPA

Douglas Fir PLYWOOD *Real Wood* **Panels**

LARGE, LIGHT, STRONG

IMMEDIATE . . .

SAVINGS WITH Chilled Car Wheels

- **Immediate and substantial savings in wheel investment.**
- **Immediate reduction in replacement and wheel shop costs.**
- **Immediate delivery from 26 strategically located member plants—reducing inventory requirements.**
- **Improved design—assuring greater safety, strength and durability.**

★ ★ ★

Details of these economies can be obtained from any member of the Association of Manufacturers of Chilled Car Wheels.

Remember—Over 65% of the nation's railroad freight is carried on Chilled Car Wheels.

ASSOCIATION OF MANUFACTURERS OF CHILLED CAR WHEELS

445 NORTH SACRAMENTO BOULEVARD, CHICAGO 12, ILL.

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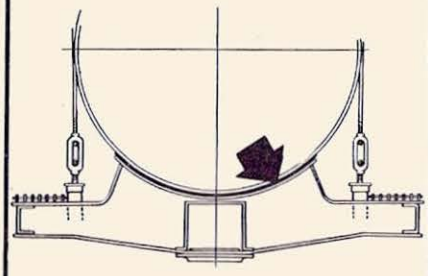
Southern Wheel (American Brake Shoe Co.)

Fabreeka...
On Tank Cars

THE BARRETT DIVISION SPECIFIES FABREEKA PADS ON ALL NEW TANK CARS



End view showing location of Fabreeka pads on tank car. These pads are used as a lining for both cradles. They are 15/64" thick, 2' wide and from 5' to 10' long.

On Modern Tank Cars

Built by American Car and Foundry Company

FABREEKA PADS are used between the tank and the two supporting cradles because —

1 Fabreeka breaks the metal-to-metal contact between the tank and the cradles, taking up all irregularities of the bearing surface.

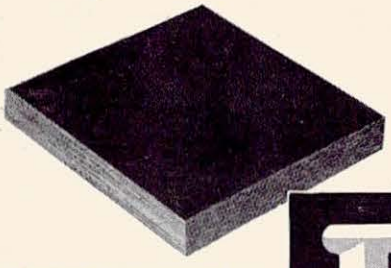
2 Fabreeka distributes the load of tank over the cradles.

3 Fabreeka's toughness means a permanently tight and economic assembly as compared to the usual wood filler.

4 Fabreeka acts as a cushion against shocks in riding.

5 Fabreeka has long life. It out-weathers all other materials of a resilient nature. No replacements should be necessary.

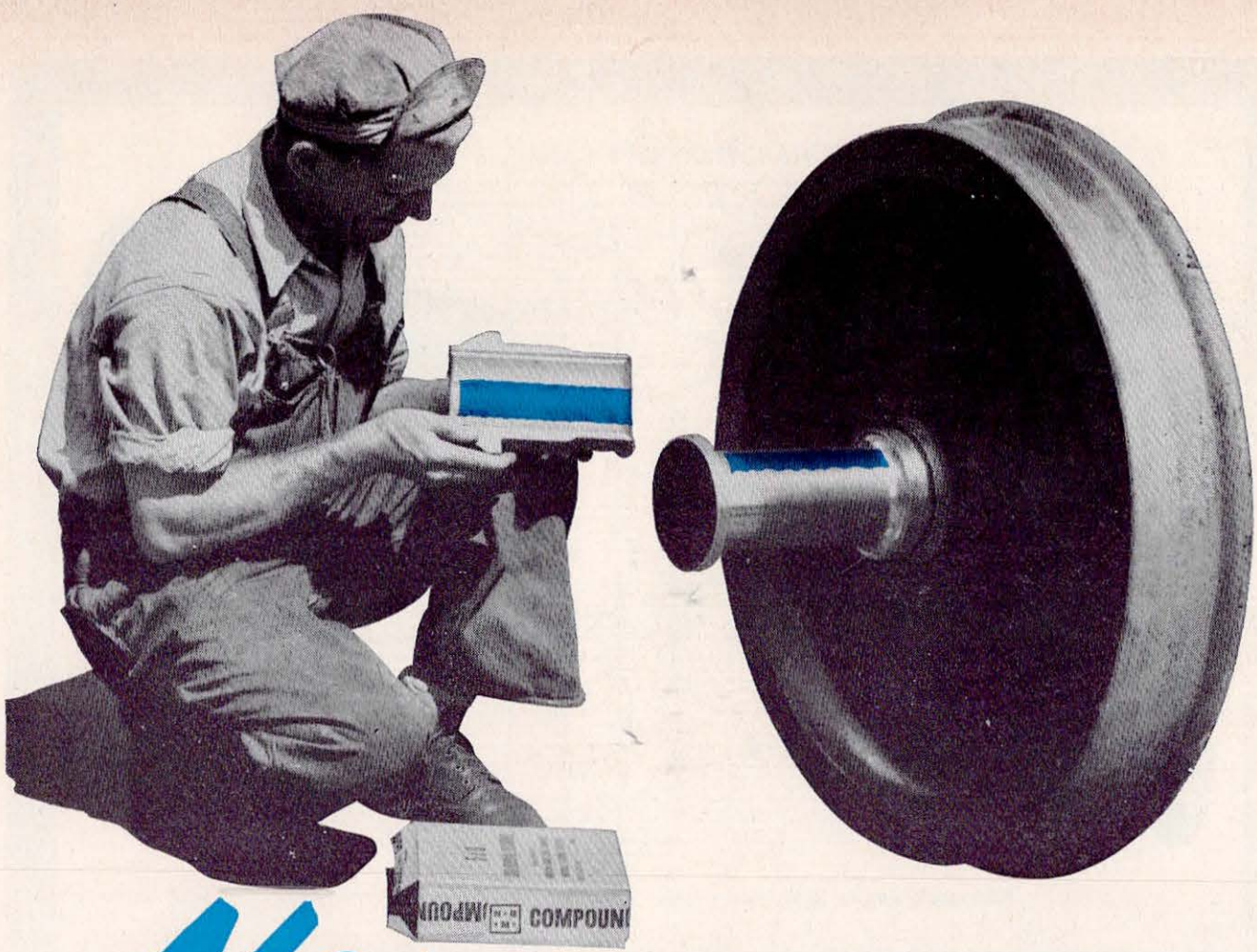
It Pays to Specify Fabreeka



Fabreeka is a patented material having great strength, limited resiliency, minimum permanent set, high damping, and long life.

FABREEKA PRODUCTS COMPANY, INC.
222 SUMMER ST., BOSTON 10, MASS.

FABREEKA



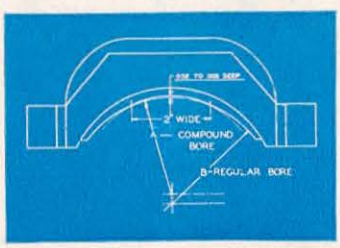
New N-B-M COMPOUND BORE JOURNAL BEARING

Reduces Hot Boxes . . . Lowers Maintenance Costs

The N-B-M Compound Bore Journal Bearing gives you a precision-machined fit right from the start—and is furnished at no extra cost

New savings in maintenance costs, better journal bearing performance... both of these important advantages are now made possible by N-B-M Compound Bore Journal Bearings.

N-B-M Compound Bore Journal Bearings are precision-machined and assure a fit on either standard or undersized axles that is superior to hand scraping. This better fit is due to the compound bore—actually a bore within a bore as shown in the blueprint. The compound bore design permits a wider journal-contact area *right from the start*—insuring maximum fluid film pressures for better lubrication and a shorter, lower-temperature run-in. No hand scraping or fitting are necessary. N-B-M Compound Bore Journal Bearings are ready for service as shipped. In the case of undersized axles, necessary conformation of the bearing is minimized.



This new development in journal bearing design has been thoroughly service-tested and is now in use by several leading railroads in both freight and passenger service. Savings in money and time have been exceptional. *N-B-M Compound Bore Journal Bearings are available for immediate shipment—at no extra cost over standard journal bearings.*

Write for additional technical information on N-B-M Compound Bore Journal Bearings, or have the nearest N-B-M representative personally give you more details.

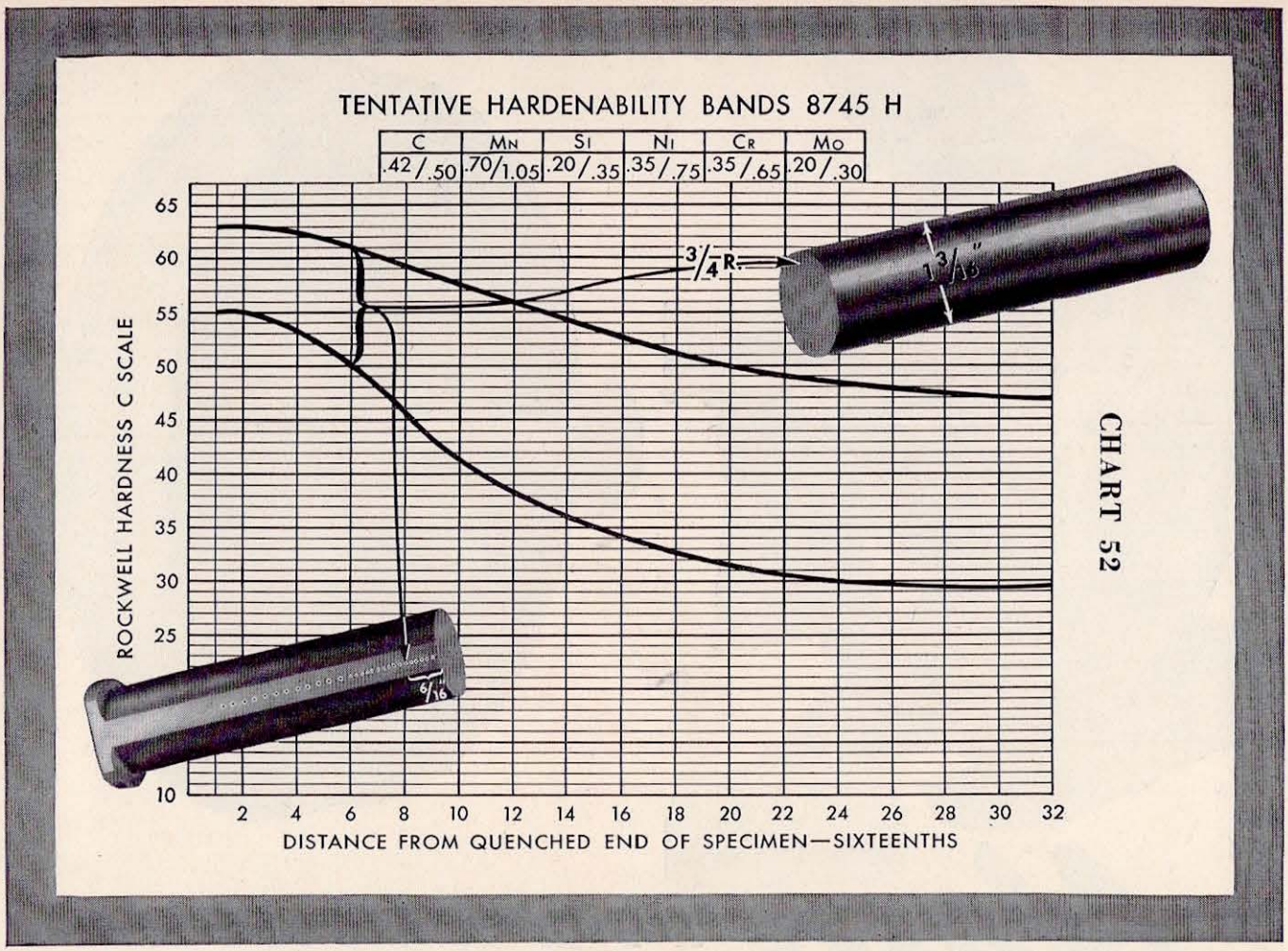
Plants in: St. Louis, Mo. • Meadville, Pa. • Niles, Ohio • Portsmouth, Va. • St. Paul, Minn. • Chicago, Ill.

AMERICAN Brake Shoe COMPANY

NATIONAL BEARING DIVISION

4930 Manchester Avenue • St. Louis 10, Mo.

PLANTS IN: ST. LOUIS, MO. • MEADVILLE, PA. • NILES, OHIO • PORTSMOUTH, VA. • ST. PAUL, MINN. • CHICAGO, ILL.



This hardenability chart for 8745 H shows that the Rockwell hardness at a point 6/16 in. from the quenched end of a Jominy specimen is the same as that found at the three-quarter radius of a 1–3/16-in. bar section quenched in agitated oil.

How You Gain by ordering to Hardenability

Bethlehem's production of alloy "H" steels has more than doubled in the last two years. Progressive buyers of steels in all industries are now specifying hardenability bands to promote uniformity. This provides worthwhile advantages, as top extremes in hardenability frequently cause quenching cracks, and bottom extremes may mean failure to obtain the effectiveness of quench desired.

For example, a 1–3/16-in. round must be quenched in oil to produce Rockwell C-50 minimum hardness at the three-quarter radius. Standard cooling rate curves for a mildly-agitated oil quench show the commensurate distance from the hardened end of the end-quench test to be 6/16 in.

When this required distance is located on an established hardenability chart, such as the one illustrated, we find that 8745 H analysis will produce 50 minimum and 61 maximum hardness. This indicates that 8745 H meets these particular requirements. The possibility of getting an 8745 type steel of lesser or greater hardenability is eliminated if the "H" steel is ordered.

Hardenability charts similar to this have been published by the AISI covering all of the popular alloy steel grades.

Whether you order to hardenability or whether you use the conventional methods, Bethlehem metallurgists will be glad to help you with your analysis, heat-treatment and machining problems. We make all of the alloy steels listed by AISI, as well as special grades.

BETHLEHEM STEEL COMPANY
BETHLEHEM, PA.

On the Pacific Coast Bethlehem products are sold by Bethlehem Pacific Coast Steel Corporation

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BETHLEHEM STEEL ★

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Air power is safe, clean, flexible and highly productive. For air-power tools built to highest quality standards, insist on CLECO air tools, bearing this familiar trade mark

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Back of CLECO Products . . . with 25 years experience in precision manufacturing, is the REED ROLLER BIT COMPANY, one of the largest companies of its kind in the world.

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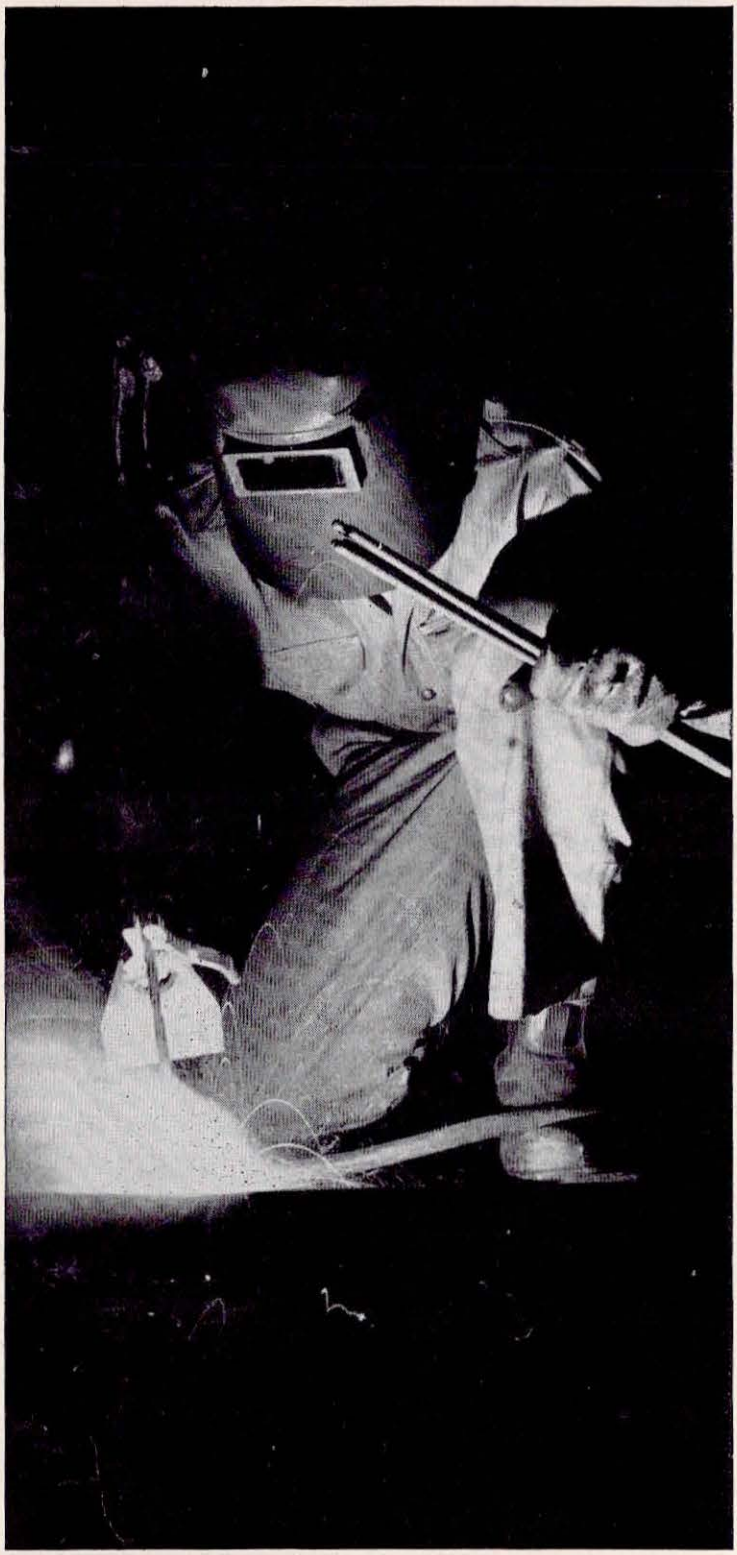
WHY FABRICATORS LIKE YOLOY-YOUNGSTOWN'S HIGH-TENSILE STEEL

Yoloy is Easy to Weld



YOUNGSTOWN'S Yoloy is a high-tensile steel that can be welded as readily as most carbon steels of the same carbon and manganese content.

Yoloy is a high-tensile low alloy nickel copper steel deriving its greater physical properties from a balanced combination of chemical elements which reduce air hardening to a minimum.

This easy welding property of Yoloy has been demonstrated in hundreds of applications. Fabricators and welding engineers frequently praise the strong, safe, ductile, easy-to-make welds they obtain on Yoloy steel.

In addition to its ease of welding and greater strength, Yoloy is ductile, has more impact strength and has superior ability to resist corrosion and abrasion making it an ideal steel for that tough job where weight saving without loss of strength or service life is required.

Yoloy steel is available in the form of sheets, plates, strip, bars and tubular products. For further information just phone the Youngstown district sales office which serves you.

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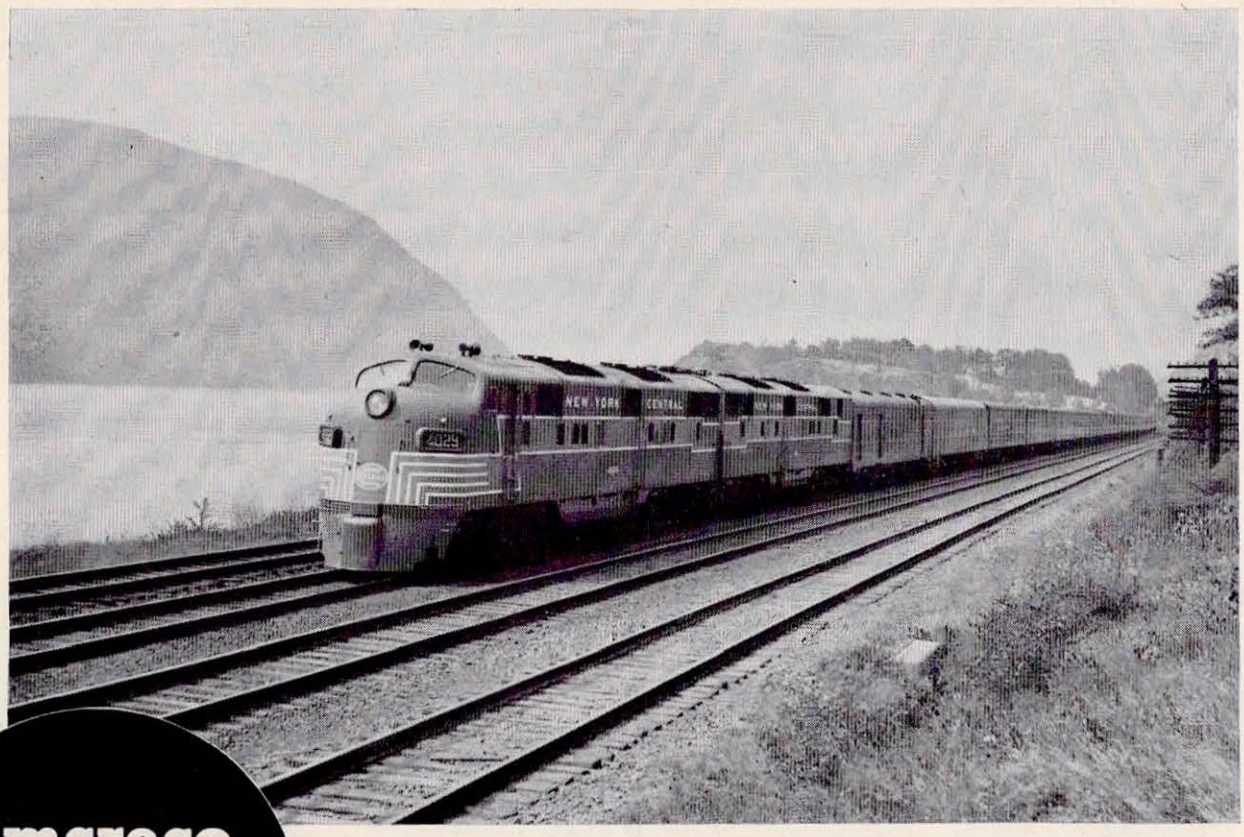
Every foot of the way



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Protection . . . that's what Amcreco Pressure Creosoting means to you. Protection in the form of safer roadbeds. Cross ties creosoted by the Amcreco Lowry Process last longer too. In fact they even exceed their life expectancy . . . the records prove it.

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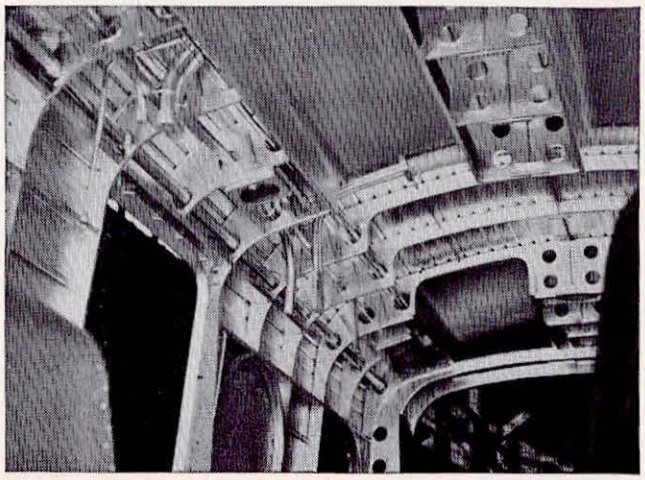
CARS OF THE NEW TALGO TRAIN DEMONSTRATE DESIGN FREEDOM MADE POSSIBLE BY ALCOA ALUMINUM CONSTRUCTION



★ Why keep your most compelling equipment ideas on paper? You can bring them to life *now* with Alcoa Aluminum—the metal that meets tomorrow's railroad demands. It gives you a free hand to design for lightness with strength. Higher speeds. Lower center of gravity. Simple fabrication. Low maintenance. Long life.

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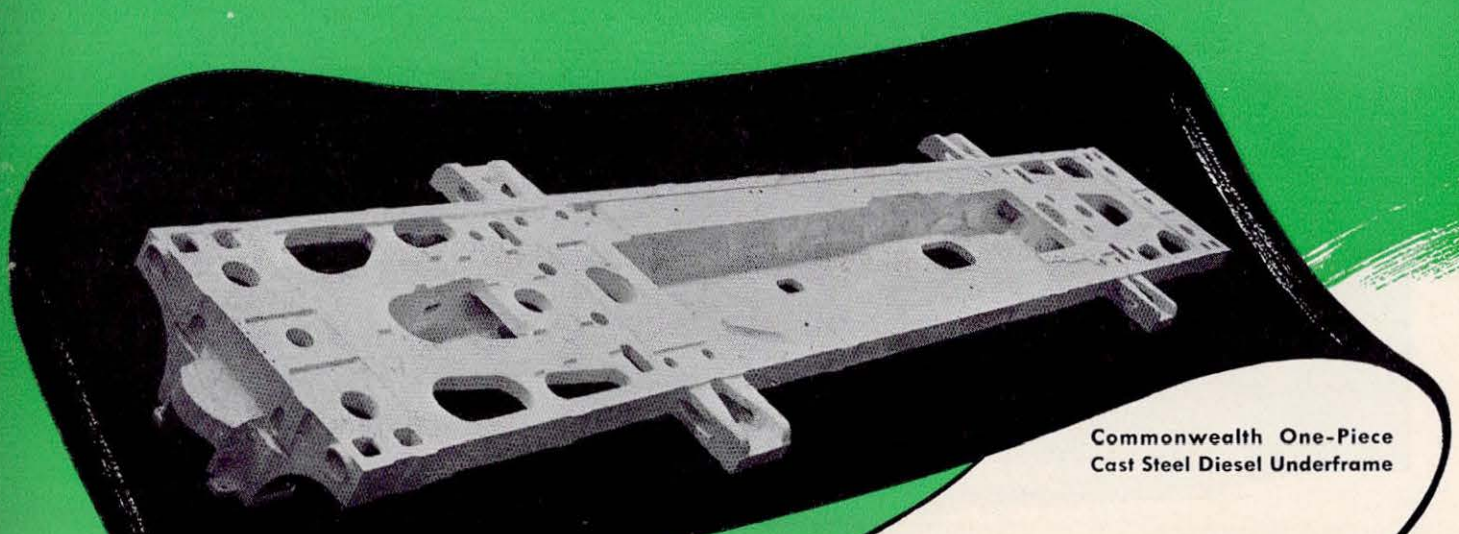
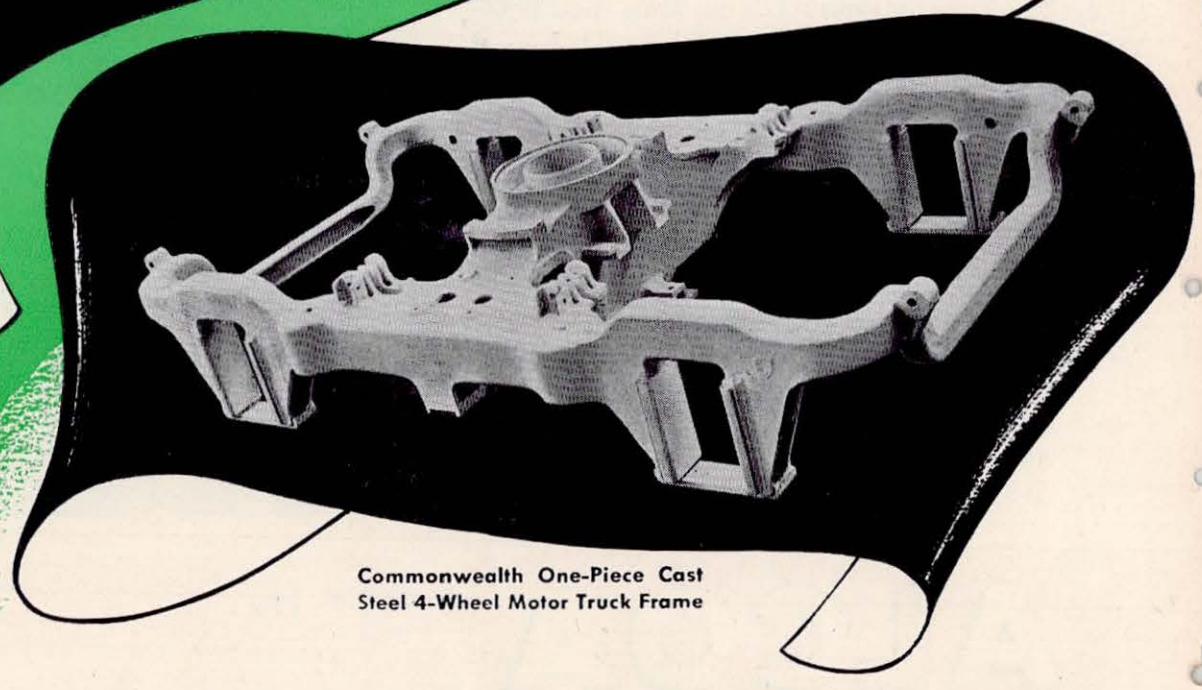
Whatever Your Diesel Switcher Design . .

Specify COMMONWEALTH UNDERFRAMES *and* TRUCKS

for STRENGTH, DURABILITY,



Commonwealth One-Piece
Cast Steel Diesel Underframe



Commonwealth One-Piece Cast
Steel 4-Wheel Motor Truck Frame

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GRANITE CITY, ILL.

Built by Baldwin
1000 H. P. Diesel Switcher. Equipped with COMMONWEALTH UNDERFRAMES and MOTOR TRUCKS.

ECONOMY

Built by Baldwin
1500 H. P. Diesel Road Switcher. Equipped with COMMONWEALTH Swing-Motion equalized type MOTOR TRUCKS (for road service) and COMMONWEALTH UNDERFRAMES.

The rugged one-piece cast steel construction of COMMONWEALTH UNDERFRAMES provides inherent strength and permanent durability to withstand the severe shocks of switching and road service. In the event of collision, damage to the power plants is minimized. COMMONWEALTH UNDERFRAMES expedite production, too, for they are furnished completely machined and ready for assembly.

Motor Trucks with COMMONWEALTH one-piece cast steel FRAMES include integral pedestals, assuring true wheel alignment at all times. Superior riding qualities, better all-round performance and minimum maintenance are added advantages of Commonwealth truck designs.

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Yale Material Handling Machinery keeps materials "on the move" . . . lowers costs in a hurry . . . permanently.

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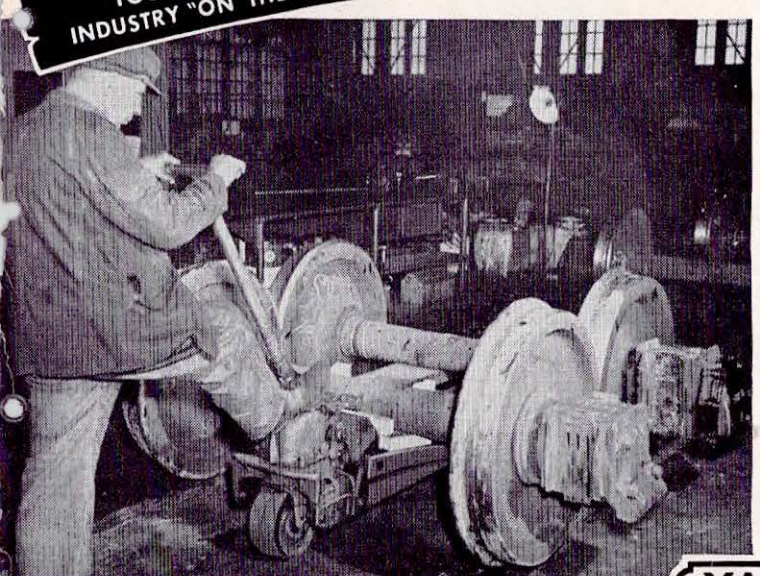

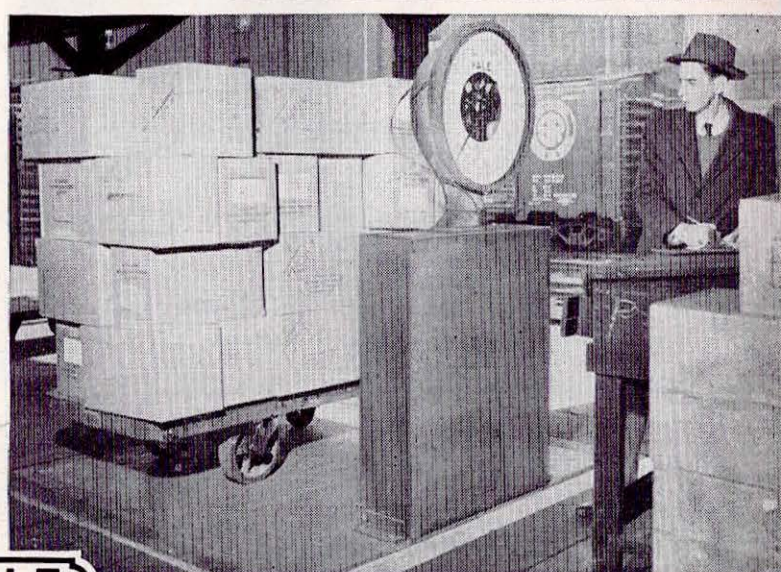

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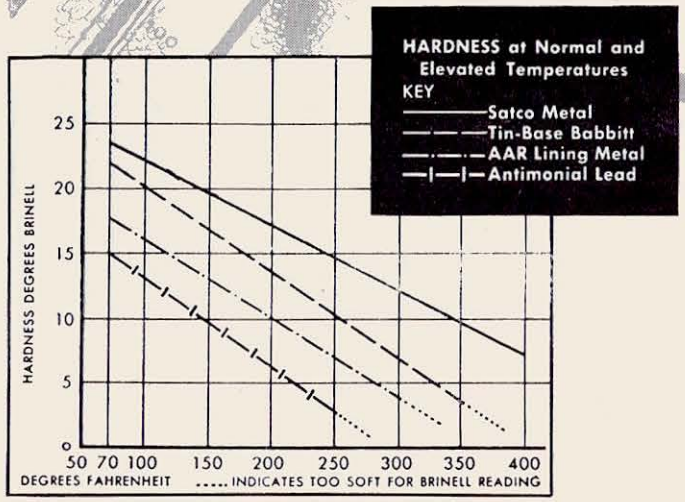
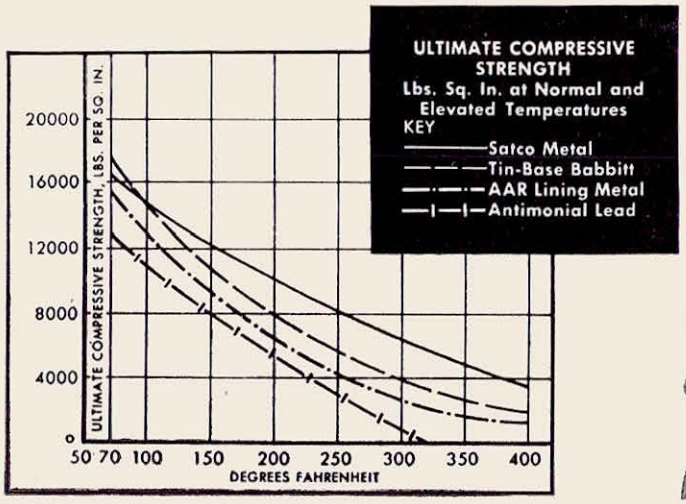
Improved MAGNUS BEARINGS *Modern*

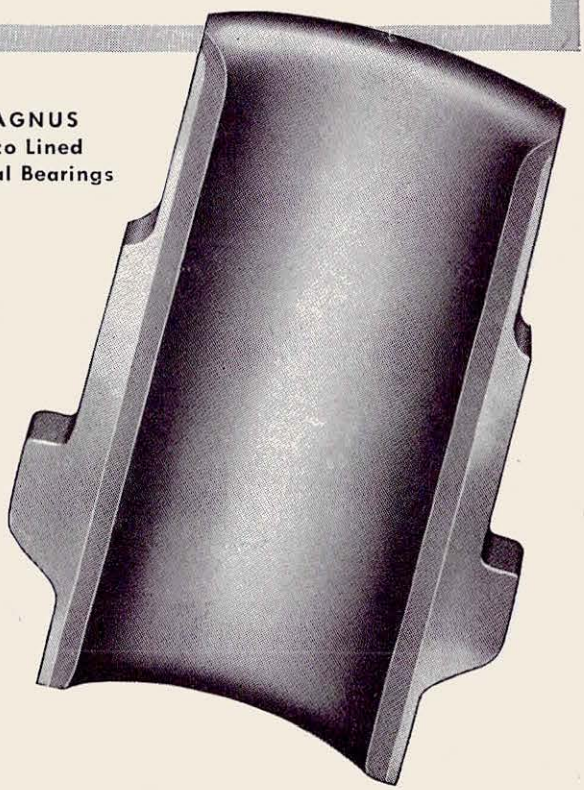
SATCO withstands HIGH temperatures

Bearings lined with Satco Metal "bear up" under severe or even abusive service, because (as the charts at the left show) Satco Metal has much *greater hardness* and *compressive strength* than tin-base Babbitt—especially at temperatures above normal.

For highly satisfactory results in severe service, and for longer life in ordinary service, specify *MAGNUS Satco Lined* Bearings.







MAGNUS
Satco Lined
Journal Bearings

SATCO Bearing Metal

MODERN HEAVY DUTY BEARINGS

MAGNUS METAL CORPORATION
CHICAGO NEW YORK

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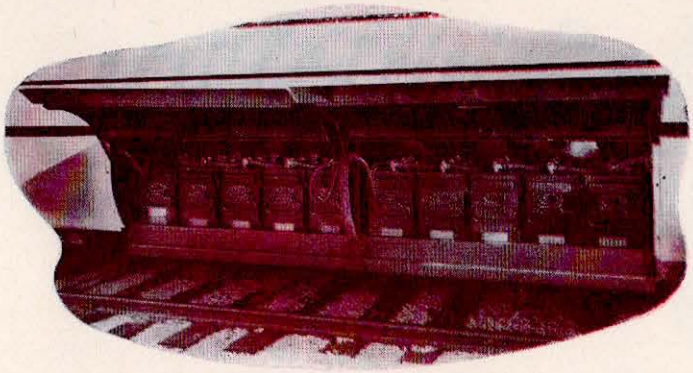
Using More Electric Power Per Car?



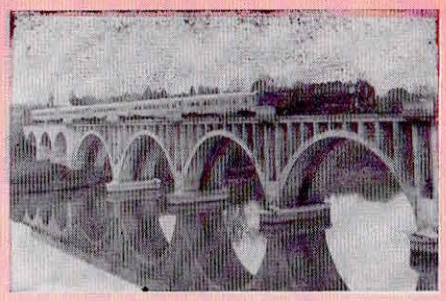
Save on Battery Weight!

NEW RAILWAY car designs cater to passenger comfort and convenience...and use great amounts of electric power to do so! In cars having electro-mechanical air conditioning, for example, many railroads are employing 64- and 110-volt systems with axle-generators exceeding 20 kw and batteries having a minimum capacity of 55 kwhr.

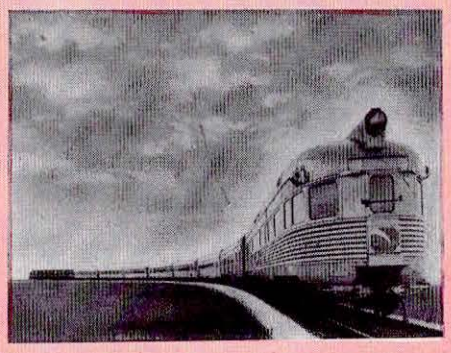
Battery weight thus becomes a more critical factor than ever before . . . and lightweight EDISON batteries become more and more valuable because they can usually save from 500 to 2000 pounds of dead weight in each such car.

That means *lighter loads* near the center of the underframe, where stresses are greatest; *lighter cars* for more economical travel; and *assured protection* of passenger comfort by dependable, long-lived EDISON batteries.

EDISON cells are built of rugged steel inside and out; the electrolyte preserves steel; the electrochemical principle of operation is completely trouble-free. If you do not already use EDISON, get a current price quotation . . . you will probably find initial cost *lower than you think;* annual upkeep *less than you pay now!*



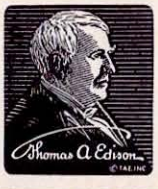
RF&P: 110-volt "Old Dominion" cars use 595 amp-hr* 88-cell A14H Edison Batteries in skirted compartments (left).



Seaboard: new 110-volt "Silver Meteor" and "Silver Comet" cars use 88-cell A12H and A14H Edisons—510 and 595 amp-hr*.

B&M and Maine Central: new 64-volt "Pine Tree" cars carry 50-cell A16H and A20H Edison Batteries—680 and 850 amp-hr*.

***8-hr rate as per A.R.E.E. standards.**



EDISON

Nickel · Iron · Alkaline

STORAGE BATTERIES

For electrical data on cars shown above, write for free 16-page booklet, "New Cars, New Comforts"

EDISON STORAGE BATTERY DIVISION OF THOMAS A. EDISON, INCORPORATED, WEST ORANGE, NEW JERSEY

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Long experience also recommends Republic for building rubber products to your individual requirements . . . or to A. A. R. specifications. In these cases, Republic is responsible for strict adherence to every production detail.

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Honeywell Passenger Car Heating Systems *Cost no more*

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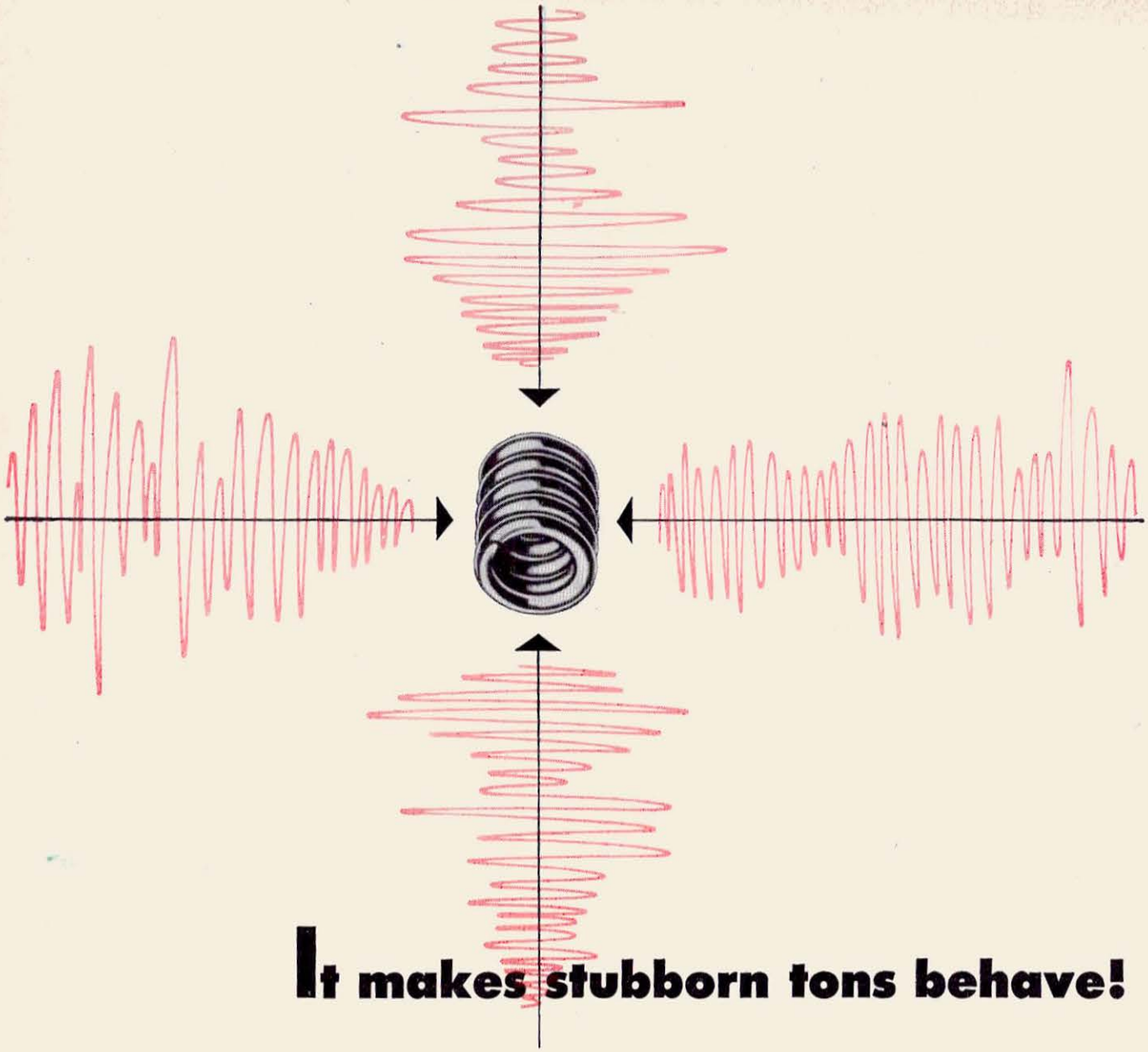
AUTOMATIC TRANSPORTATION CONTROL SYSTEMS, INCLUDING DIESEL ENGINE TEMPERATURE AND PASSENGER CAR HEATING



It makes stubborn tons behave!

You're looking at one of the eight small lateral springs that are the secret of the Scullin L-V Truck's success.

It takes destructive bounce and sidesway right out of the most unruly boxcars. Its exclusive two-way "L-V" action completely cushions and controls *both* lateral and vertical motion—without costly maintenance.

result:

SCULLIN LATERAL VERTICAL L-V CUSHIONED MOTION **TRUCKS**

make rough rails *safe* for high-speed freight!

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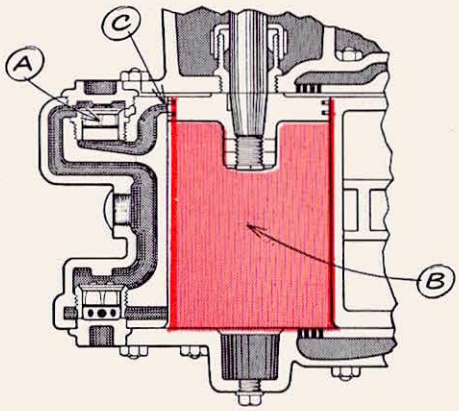
STANDARD ENGINEER'S CASE FILE

Case 1156—Eliminating Carbon Trouble in Locomotive Air Pumps



LOCOMOTIVE AIR PUMP
HIGH-PRESSURE CYLINDER AND DISCHARGE

After a full year of operation on an engine in main line service, the air discharge valves in the air pump, lubricated with Calol Air Pump Lubricant, were free of carbonaceous deposits ... pistons, rings and lands were also clean. Recommended for both the air and steam ends of Westinghouse and New York locomotive air compressors.

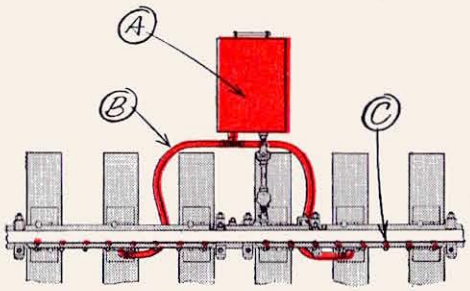
A. Contains special additive—resists oxidation and the formation of lacquer and carbon throughout the pump and especially in critical valves.

B. Prevents development of high temperatures . . . sticks on cylinder walls, pistons and other parts —minimizes oil carry over into air passages and valves.

C. Detergent keeps rings clean and free, air passages open.

Calol Air Pump Lubricant is made of selected stocks with very low carbon-forming tendencies.

Case 1141—Reducing Wear on Rails at Curves



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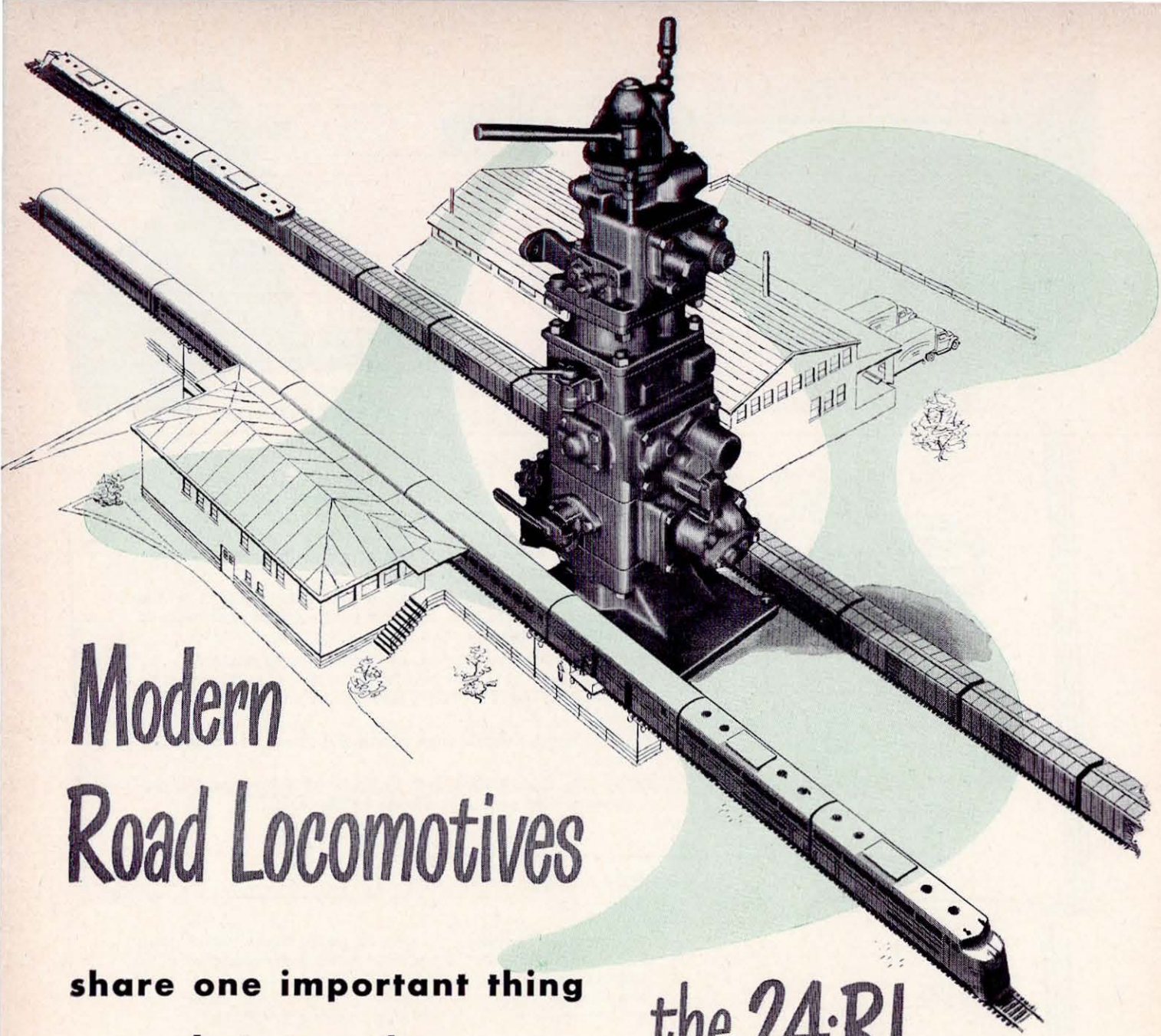

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WILMERDING, PA.

Vol. 127, No. 8 August 20, 1949

RAILWAY AGE

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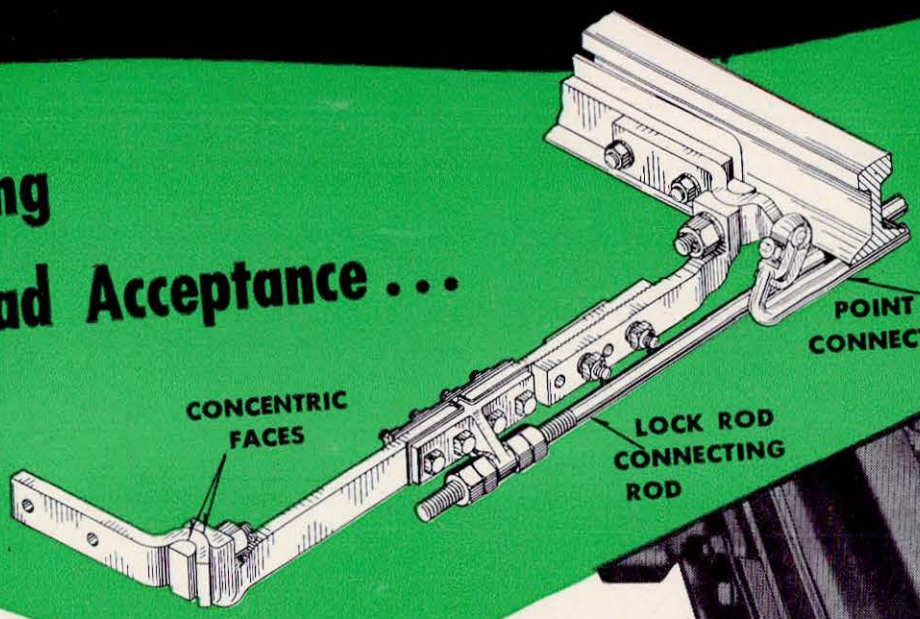

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WEEK AT A GLANCE

FREIGHT CAR IMPASSE: One of the railroads' major problems is the necessity of maintaining costly "stand-by" facilities for periods of peak traffic or for the accommodation of those shippers who patronize the rails only when publicly-financed highway and waterway transportation can't or won't handle their traffic. But the companies that build freight cars for the railroads have an even more serious stand-by problem. Our leading editorial, discussing the car builders' situation, suggests that some attempt to alleviate that problem may be in the long-run interests of the railroads themselves, and gives some of the reasons why this may be so.

TURBO-ELECTRIC LOCOMOTIVE FOR THE N. & W.: In last week's *Railway Age* there was an article outlining possible avenues of exploration for further development of steam motive power. Briefly, the author suggested use of a high-pressure water tube boiler, turbine, and some form of electric drive. This week, the Norfolk & Western has announced an order for a locomotive involving substantially those very principles—600-lb. pressure water tube boiler and turbo-electric drive. Baldwin, Westinghouse and Babcock & Wilcox will cooperate in building the new locomotive, which is further described and illustrated in the News section.

TOUGH TUNNELING: This week's engineering article (page 56) is a well-illustrated description of the construction of the Baltimore & Ohio's 8.5-mi. Elk Creek spur, built to open up a new West Virginia coal field. The outstanding feature of the project was the boring, partly through abandoned mine workings, of a 1,517-ft. tunnel.

TAXES AND PASSENGER REVENUES: The National Association of Railroad and Utilities Commissioners, which held its annual meeting last week at Cleveland, Ohio, heard some pretty sound discussion of railroad tax problems—and, in particular, of the inequities of the wartime federal excise taxes on common carrier freight rates and passenger fares—by J. F. Craemer and W. R. McDonald, president and past president, respectively, of the association. The same two gentlemen also made a number of interesting and thought-provoking suggestions about the problem of railroad passenger-service deficits. Their remarks, together with addresses by Interstate Commerce Commissioner Walter M. W. Splawn and Dr. Ford K. Edwards, director of the commission's Bureau of Accounts, are summarized in our account of the meeting, which begins on page 59.

HIGHER FREIGHT RATES: Starting on page 53 is a report of the I.C.C.'s final decision in the Ex Parte 168 case—which allows the railroads to increase freight rates by approximately 3.7 per cent, effective September 1. Additional comment on the decision and some of its probable effects are included in the article on page 51.

DR. DUNCAN TO RETIRE: Dr. C. S. Duncan, economist for the A.A.R., and one of the co-authors of the study of truck subsidies which appears on page 62, plans to retire at the end of this month, after many years of distinguished service to the railroad industry. For details, see the News section.

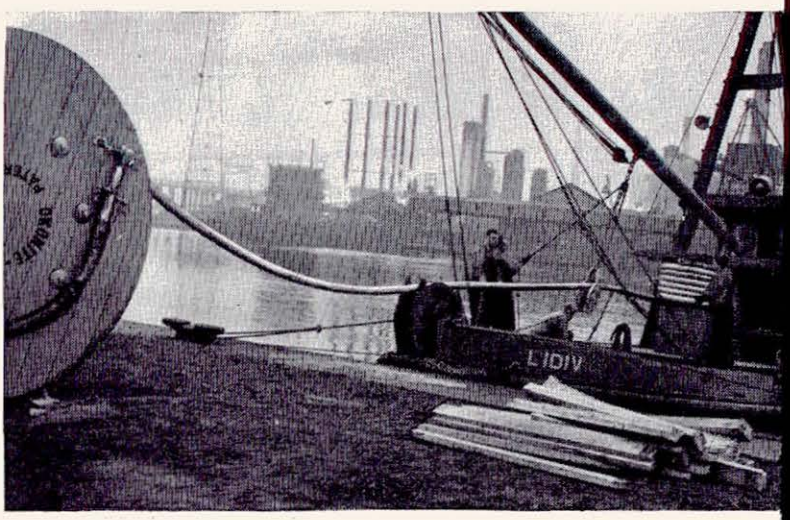
NEW PEAK FOR FREIGHT SERVICE EFFICIENCY: Those self-appointed experts who accuse the railroads of "inefficiency" better take time out to read the latest "Monthly Comment" of the I.C.C.'s Bureau of Transport Economics and Statistics. As reviewed on page 51 it plainly shows that nearly all data on freight train performance for the first five months of 1949 surpassed the results for comparable periods of earlier years. The "Comment" also estimates the railroads' annual income on the basis of the coming 40-hr. week and the new rates just authorized under Ex Parte 168, as reported on page 53.

THERMOSTATS FOR HEATED REFRIGERATOR CARS: On page 46 is an extract from a report on research conducted in Canada on thermostatic control of temperature in railway refrigerator cars. The report is particularly timely, and should be of special interest, in view of the I.C.C.'s order—reported in the week's News—that railroads in Official territory must provide protection against cold for certain types of shipments.

$1,342 A YEAR—SHORT: Despite the loud and often-repeated claims of long-distance truck operators that they pay their share of highway costs, a factual study of the situation, as it exists today, shows that they fall far short of doing so; in the case of the heavier trucks, at least, the shortage comes to the staggering amount of $1,342 *per truck per year*. This is developed in a factual survey of highway costs, payments and use, by Dr. C. S. Duncan and E. R. Feldman of the Association of American Railroads, which begins on page 62.

"FACT-FINDING" IN STEEL: Our News account of the presentation by Clarence B. Randall, president of the Inland Steel Company, to President Truman's steel "fact-finding" board deserves careful reading by every person thoughtful enough to wonder just where the United States is headed.

30,000 UNEMPLOYED: Because John L. Lewis is using his monopolistic dictatorial power over the country's coal miners to limit them to a 3-day work week, more than 30,000 railroad men have been laid off. The railroads themselves are losing, each week, coal loadings of nearly 75,000 cars and revenues of more than $10 million, and have an added idle investment in coal cars of over $100 million. These facts, as presented to a Senate committee by J. Carter Fort, vice-president of the A.A.R., are included in our News report of his testimony.



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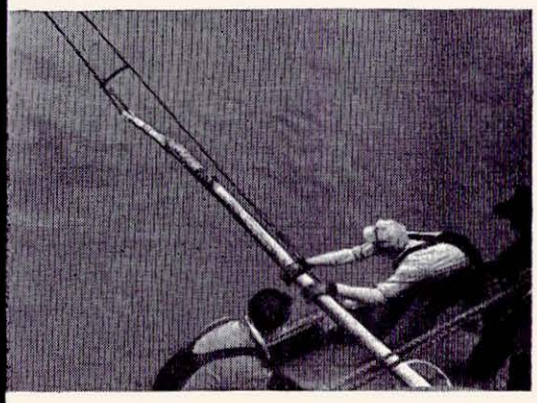

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THE IMPASSE IN ORDERS FOR FREIGHT CARS

The car-building industry suffers acutely from a malady which also afflicts the railroads—namely, the necessity of shouldering the cost of maintaining "stand-by" plant and organization which are operated under a capacity production load only part of the time. The railroads complain, with obvious justice, that they must maintain themselves in readiness to assume large and sudden increases in traffic —and that the resultant cost of maintaining much of their plant in idleness for a large part of the time is a burden of which they should be relieved to the extent that the shipping community can reasonably eliminate "peaks" and "valleys" in their calls for transportation service. The railroads feel especially aggrieved at shippers who, in normal times, send the desirable part of their tonnage by truck or barge—using the railroads only for the inconvenient traffic and that involving empty mileage—but who descend upon the railroads with *all* their traffic in national emergencies when trucks and barges are not available.

The freight-car-building industry has the affliction of "standy-by" costs to a more serious degree even than the railroads, as witness the fact that orders for freight cars by the Class I railroads in the first seven months of 1949 have totaled less than 2,000; and that the "backlog" of unfilled orders will have vanished by the end of the year if not before. Nobody expects the railroads to purchase cars which they do not need, but the fluctuations in orders for freight cars are far more violent than the fluctuations in the railroads' actual need for cars; and are probably more violent than necessary. It is evident, also, that the cost of maintaining car-building capacity which is so often idle becomes an inevitable item in the cost of cars actually produced and sold.

Critical Examination Needed

This paper is not taking upon itself the job of spokesman for the car-building industry. The car-builders have able men in their employ to whom that duty is assigned. We suggest, on the contrary, only that the current impasse in freight-car-buying be examined critically from the standpoint of the long-run welfare of the railroads themselves. The principal factors which have brought about prolonged inactivity in the freight car market appear to include: (1) discontent over high prices; (2) doubts as to the immediate future of railroad traffic and the need for cars with which to handle it, and (3) fears about the increased expenses the railroads are incurring, especially from the establishment of the five-day week.

There is no doubt that prices of cars are high. On the other hand, the cause is to be found in the costs which the builders themselves have incurred and not in "excessive profits"—because the railroad

equipment industry in 1948 earned only 10.2 per cent on "book net assets," according to the compilations of the National City Bank of New York, as compared to 18.9 per cent for the manufacturing industry as a whole. Costs of materials should not be permitted to serve as a prolonged deterrent to orders, because it is as feasible to write such costs into "escalator clauses" on the downward side of delivered prices as it is to make similar provision for increases.

The Importance of Quality

Nobody can say with certainty whether the railroads will need, quantitatively, more freight cars in 1950 than they have in 1949. At the same time, no one can deny that, *qualitatively*, they could use a much larger number of cars in top mechanical condition (to say nothing of more cars provided with improvements to afford greater protection to lading at high speeds) than they could possibly expect to get, even if the car-building industry were operating at maximum capacity. In a time of intense competition, surely, the provision of the best equipment which their resources will allow is a desirable objective for the railroads. There are doubtless some railroads so hard pressed financially that they do not at present have the resources to carry on a consistent car-improvement program, but the number of companies in such severe straits is not large.

There remains the question of increased railway expenses, especially because of the imminent institution of the five-day week. From the long-run standpoint, this development cannot do otherwise than make manufacture in railroad shops comparatively less desirable than it has been heretofore; and it certainly should increase the attractiveness of the economies available from operating newer cars which require little maintenance in place of old cars which require a lot.

In Canada and in England the railroads, as one means of attacking their problem of maintaining "stand-by" capacity, have offered rate concessions to shippers who will contract to give exclusively to the railroads all of certain classes of traffic throughout the year. There is justice in such pricing, because the steady customer who gives some consideration to the producer's problems saves the producer expense—and he is entitled to a better price than the customer who gives the producer no such consideration. We do not know whether it is practicable or not to extend this pricing principle to the sale of freight cars, but there could be no reasonable objection to an exploration of its possibilities.

The railroads' need recognition of their problem of maintaining stand-by capacity; and giving some attention to the parallel problem of their suppliers could be utilized as an effective educational device to promote better understanding of the railroads' own "stand-by" situation.

SLASH THE PAPER WORK

In their search for ways and means to reduce unnecessary man-hours and costs under the impending 40-hr. week for non-operating employees, most railways could make a "killing" if they were permitted to reduce the multitude of records and reports presently required and maintained to the number actually needed for efficient control, and to simplify and standardize those remaining.

Clerical, accounting and related work on the railways received its first big impetus in 1907, when the first classification of accounts was promulgated by the Interstate Commerce Commission. In 1914 the present accounting classifications of the commission were issued, which called for greater detail and thus required additional clerical and accounting effort. Subsequent revisions increased the burden, and along with them came valuation requirements, particularly Order No. 3, to multiply record-keeping costs. The trouble with most such compulsory reporting is that the reports continue long after the need for them disappears.

In recent years the problem has become still more acute. The war brought new requirements, many of which still continue to burden the roads in peacetime. And added to all this has come a new load of clerical work arising out of dealings with organized labor. As a result, the roads are today overwhelmed with paper work—work which has not only swelled their strictly clerical forces out of all proportions, but which, of greater consequence, is taxing and distracting thousands in a supervisory capacity to the point where their efforts on productive field work are seriously impaired.

While this pyramiding of reports and records extends through every department, it is no better exemplified than in the maintenance-of-way department, beginning with track foremen. A study several years ago covering a large number of roads with more than 20,000 foremen indicated that these foremen were required to fill out an average of 43 reports a month, which consumed about one hour a day for 25 days, in addition to one entire day at the end of the month. Only when it is realized that this clerical work generally requires from 12 to 20 per cent of the foreman's time can it be appreciated how costly it is in the first instance, and how it cuts into his efficiency in planning and directing the field work of his forces.

There has to be a lot of record-keeping to operate and regulate the railroads. The burden will be heavy enough when held to the minimum, without letting it get entirely out of hand. Much in this respect can be accomplished only through the cooperation of the I.C.C. and other federal and state agencies, and every effort should be made to secure such cooperation, but there are many things the railroads can do themselves. A few years ago, one road, uncovering a multiplicity of forms being used

in its various departments, many duplicating one another, in whole or in part, completely overhauled its entire reporting system. Many forms were consolidated, others killed outright, and still others were broadened to expand their usefulness, sometimes to meet the purpose of several officers or departments. The overall result was a reduction of more than 470 forms, and the simplification and standardization of the remainder. What the railroads need is not more clerical help to handle their paper work, but a drastic reduction and simplification of such work to minimize its quantity.

FORWARD OR BACKWARD?

There is no question that the general average of railroad motive-power practice has advanced substantially in the past 15 years. In most individual cases this statement applies to steam as well as Diesel power in the matter of availability, and, although often to a somewhat lesser extent, to utilization. That is why it is disturbing to find what appears to be a backward step—at least in thought.

At the 1935 meeting of the American Association of Railroad Superintendents, it was asked whether any examples were found where steam switchers were worked 24 hours a day. The reply was that a lot were found. One road reported a system average of about 18 hr. per day per locomotive employed in yard and terminal service. It was further stated that locomotives that worked 24 hr. per day worked 30 consecutive days, and that the mechanical department apparently had no difficulty in complying with legal locomotive inspection requirements as the practice had been employed for 10 years.

While there is little argument against the superiority of the Diesel-electric locomotive in switching service where sufficient utilization can be obtained to justify its initial cost, there is something to be said about the decline in initiative in attempting to get maximum benefit from existing steam switching power, because it is symptomatic of a general lessening of initiative in getting the best out of steam freight and passenger power as well. While there is perhaps not so much need for improvement in the operation of steam switching power as in road steam power, are there not many cases where a little effort could produce a profitable improvement?

Are there not yards today, in which a large enough number of steam switchers are assigned to only one or two shifts, where a three-shift assignment would reduce the number of locomotives required by a third or so? Even though such yards may very likely have Diesel-electric switchers eventually, the savings in the meantime can be appreciable, because many expense factors, such as I. C. C. inspections, are dependent on total elapsed time.

But the important moral of the 1935 example is that the reduced effort being applied to bettering steam performance in switching service merely typifies concretely a similar reduced effort in obtaining optimum performance from steam freight and passenger power, which, particularly the former, is doing a huge amount of work.

UNCERTAINTY GREATEST EVIL IN BRITISH NATIONALIZATION

British railroaders would probably agree that most of the difficulties in the "bedding down" of nationalization arise from the attempt to unify four hitherto separate companies. The same pain and anguish would probably occur if some financial titan were forcibly to unite four large self-sufficient railroad companies into one private company. In the operating organizations themselves there is *yet* no evidence that the intrusion of the state as owner and master is, *per se*, causing the increasing bewilderment and unrest which is apparent in all ranks of the service. It is rather that the component parts of four hitherto firm sides of beef wonder about their future status in the stew now being prepared.

It is at the higher, nationalization-created levels of administration that the birth pangs of government-owned transport are so acute as to paralyze many of the facets of plan and action which private managements take as a matter of course. It is impossible to determine what the current plan for capital expenditures and program of work for the railroads is; it is doubtful if there is one. The rehabilitation of badly run-down properties and rolling stock — which, theoretically, ought to be speeded up by (1) unified management, because it can put in work where it will do the most good, and enhanced by (2) government ownership, because it has readier access to money and materials — has actually been greatly obstructed by the working out of these two mandates of the Transport Act.

On the eve of nationalization at the beginning of 1948, the British roads had a "kitty" of at least $650 to $700 million with which to lift themselves back to 1939 standards and, eventually, far beyond. It is understood that the 6,845-mi. London, Midland & Scottish alone had planned, and partially under way, improvements amounting to about $440 million, from company treasury and borrowed funds. Most of this program is now in abeyance.

Nationalization of transport introduced a new crop of uncertainties that obstruct essential improvements demanded now — not in Utopia. Will unification of the railroads so alter traffic channels that fixed improvements may prove redundant? Will the British Transport Commission, which is in the process of buying out all except local highway operators, arbitrarily shift l.c.l. traffic from rail to road, rendering useless improvements in merchandise transfers? Will the newly-nationalized docks divide and "rationalize" their spheres of influence so that excess railroad facilities must be completely revamped? Is railroad traffic to be protected by arbitrary increases in truck rates and bus fares or will highway enthusiasts gain the ear of the Transport Commission, and carve a larger share of the pie?

The worst vice in socialization is not the more lurid corruption of politics. It is possible that "British Railways" might remain relatively pure of this taint. But the British public might lose less, even, from a little graft here and there than they are now losing by the paralysis of action which results from uncertainty in a world of strange issues and aims.—W. H. SCHMIDT, JR.

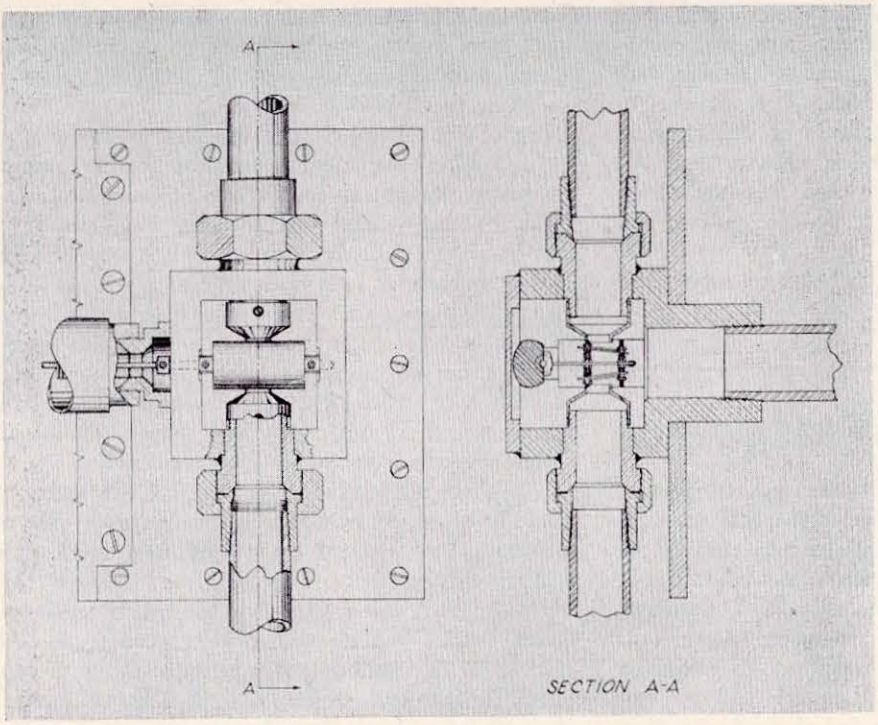


Fig. 1 — By-pass valve and valve flap

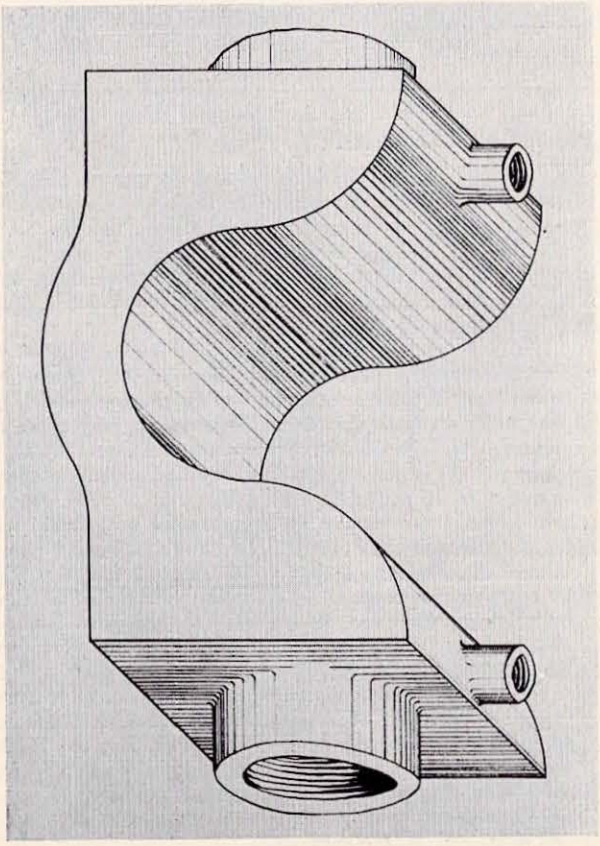


Fig. 2 — The "Thermal" trap

When the Canadian railroads started to plan for the change from end ice bunkers to top ice bunkers on their refrigerator cars, plans had also to be laid for heating the cars in winter time. Without the end bunker there was no place to put the portable charcoal heater. So, the development of an underslung charcoal heater was called for. This heater, as it was developed, was non-portable and was fixed to the car underneath the floor. A coil of pipe in the fire pot was connected to a 2-in. iron pipe laid around the floor of the car underneath the floor racks. The coil and the 2-in. pipe were filled with antifreeze solution consisting of 50 per cent Prestone and 50 per cent water.

By this system the heat was conveyed into the car by a hot pipe and not by the poisonous flue gases of the portable heater. The system worked excellently and formed an immense advance over the use of the end bunker heaters. The acceptability of this system of heating on the part of the trade was so gratifying to railroad officers, that the idea of thermostatically controlling the car temperature was soon suggested.

The thermostatic control of railway refrigerator cars became a research investigation. What the work has shown is that the actual thermostat is simply one important part of a whole assembly of parts and, no matter how well this works, good thermostatic control cannot be obtained if the other parts of the system cause trouble.

Under favorable operating conditions a freight train reaches a yard about every eight hours. Underslung heater cars are equipped with liquidometers and the car temperatures, top and bottom, are read in the yard and eventually appear on the record of the car's performance on the trip. Where manual control is employed, standard

Thermostats on Heated Refrigerator Cars

Extracted from a report by C. D. Niven on research conducted by the Division of Physics, National Research Council, Ottawa, Canada*

instructions guide the car inspector as to how much draft to give the charcoal heater, depending on the temperature in the car. The draft is controlled by a damper with eight positions and well-trained men have little trouble in keeping the car to within about ±2 deg. F. of the required temperature. The success of the manual control method, of course, depends, on the fact that the insulation on the car is heavy, the heat delivery of the heating system rather small, and the heat capacity of the load enormous; so, if too little heat is being given to the car between divisional points, the temperature drop is not appreciable before the car inspection at the second points has corrected things by increasing the draft. A thermostat is only needed, therefore, when the car inspectors are not trained or are not interested in turning in good records, or are, perhaps, too busy with other duties, or when a breakdown delays the train for many hours between divisional points.

The early experiments with damper control showed quite definitely that the heat which is developed when the damper is left open just wide enough to insure that the fire stays burning all the time must be dissipated outside the car. Another serious objection to damper control is that a very small amount of power available from a mechanical thermostat had to be conveyed through the floor of a car to a damper working in sooty fumes and exposed to Canadian winter atmospheric conditions.

Direct damper control was finally given up as an answer to the thermostatic control problem, and effort was directed to the development of a means to get rid of the heat developed by a burning heater when no heat was needed to warm the loading space.

By-pass Control

An attempt was made to design a three-way valve suitable to direct the warm liquid from the heater into a by-pass pipe outside the car when heat was not needed inside. The practical consideration of transferring a weak force from the thermostat situated in air to the valve flap in antifreeze solution had to be reckoned with. A simple device which offers only a little resistance consists of a flexible rubber tube enveloping the moving part in such a way that it does not interfere with its movement except on account of the small force needed to deflect the tube slightly to the side. One end of the tube was fixed to the moving part and the other end to the valve box and a thin rod, much smaller in diameter than the inside diameter of the tube, conveyed the movement of the thermostat to the valve flap. As this rod was also used to augment the movement of the thermostat, the distance where the tube had to be flexed was far less than the movement required at the valve flap.

Rubber, however, swells in hot Prestone solution and the use of ordinary rubber, therefore, had to be ruled out. Rubber hose connections give no trouble on automobile radiators filled with Prestone because these hose are reinforced with cotton and are, therefore, much too rigid for the application in question.

An alternative to rubber pipe is convoluted copper pipe. This was found to be sufficiently flexible to use as the seal between the Prestone solution and the air. There are still hopes of getting a suitable rubber tube, but the possibility of getting a plastic tube is quite remote, unless new flexible plastics which will stand temperatures of 250 deg. F. are discovered.

The design of the frictionless valve flap is fairly simple. A glance at Fig. 1 shows that the two pipes—namely, the main heater pipe and the by-pass pipe—lead one to each side of the valve box. These pipes lead into two conical shaped parts inside the box, which reduce the diameter of the orifice about half an inch, and in this way provide a valve seat at each side. Between these two valve seats the flap hangs from a thin rod. The valve seats were machined on the lathe and are in a vertical plane. The valve surfaces provided on the flap consisted of small triangular plates mounted on the central plate as shown. The exact angle necessary was obtained by adjusting nuts at the corners of the triangles. After adjustment of the plates the nuts were given a touch of solder. Small springs were used to press the plate out against the nuts. No trouble has as yet been encountered with the small springs deteriorating.

Experience has shown that it is important to have a perfectly closing valve. This point was made very clear on one test trip when the by-pass pipe kept warm continually and wasted heat which was badly needed inside the car. After the trip the valve was examined and found to be leaking on the by-pass side. The efficient closing of the valve must not be sacrificed to simplicity of mechanical design and manufacture.

It was realized that the smaller the valve seat the

*This investigation was undertaken by the National Research Council in co-operation with the Canadian National which provided the facilities. Mr. Niven acknowledges the help and advice of J. L. Townshend, general supervisor of perishable traffic of the Canadian National, and assistance of C. St. Jacques of the National Research Council in contributing many mechanical ideas.

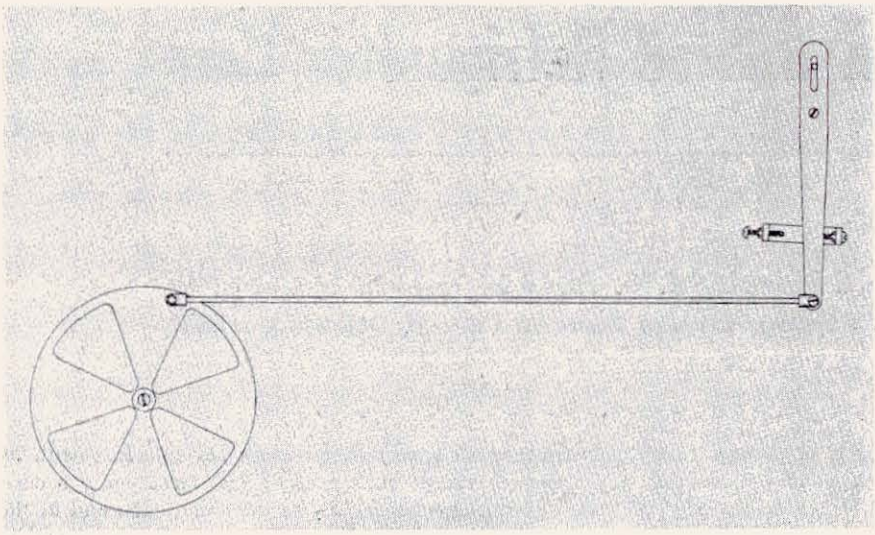


Fig. 3 — Mechanism for transferring movement of the auxiliary thermostat to the blue damper

easier it would be to get a tightly closing valve. Recent road tests suggest that heaters do not deliver so much heat to the thermostatically controlled cars as they do to the ordinary underslung heater cars, and the cutting down of the flow when the liquid passes through this ½-in. valve seat has been proposed as one cause. The diameter was increased to 11/16 in. in the newest valves.

The wastage of heat from the by-pass pipe when heat was needed inside the car would occur in another way besides valve leakage; namely, by the mixing of cold water from the by-pass pipe with hot water from the main heater pipe at the junction of the two returns. This mixing could occur by a convection process without any positive circulation of liquid through the by-pass pipe. With the valve tightly closed on the heater pipe side, it was also found that the main heater pipe would warm up for a considerable distance along its length, say for 10 or 15 ft.

To stop this internal convection a device shown in Fig. 2 was developed, which, for lack of a better name, may be termed a thermal trap, because it was designed to trap flow of heat. It consisted of a U-shaped device designed so that the bottom of the U was only ¾ in. high but 4 in. wide. The liquid was made to flow in at the top of one arm of this U and down through the bottom of the U which, being 4 in. wide, offered no appreciable resistance to a positive flow of liquid. On the other hand, a flow of heat by convection currents inside the pipe was severely hampered. Of course, the device will not stop heat transfer by conduction, but it was found to function sufficiently well to permit the successful operation of the by-pass and three-way valve system of thermostatic control.

Damper Regulation Added

At the return end of the circulation system an inverted U thermal trap was put on the by-pass pipe to prevent cold water from mixing with the hot water returning to the heater. Since there was plenty of height under the car, the arms of the inverted U were made about 8 in. long. Provisions were made to vent the traps in case of air pockets.

The early attempts with damper control had pointed to the necessity of by-pass control. Observation of by-pass control showed, however, that, even if fuel saving were of little consequence, damper regulation was also essential if perfect temperature control were to be achieved. No matter how well the valve closed, a high temperature on the valve would eventually be communicated to the thermal trap and, as soon as this got very hot, internal convection beyond the trap would start again. For successful operation, it was desirable, therefore, to cut down the delivery of heat from the heater just as soon as the heat was not needed in the car.

To do this turned out to be rather easy, because all that was really needed was a bimetal coil thermostat on the by-pass pipe near to the valve but outside of the insulation on the floor of the car. This thermostat may be conveniently termed the auxiliary thermostat. It does not need to be powerful like the main thermostat, because the latter has to respond to a change of one or two degrees, while the auxiliary thermostat need only respond to changes of 50 deg. F. The bimetal coiled thermostats used for this purpose were made of 4-in. by 3/32-in. by 5-ft. strips of bimetal. The manufacturer was asked to braze to the central ends of these coils a brass bar to permit clamping to the by-pass pipe. The force developed by such a thermostat when the by-pass was being heated with hot liquid was large enough to move a damper consisting of a circular metal plate with holes in it. The simple mechanism employed to do this consists of a pointer fixed to the end of the thermostat. This moves one end of a lever the other end of which, in turn, pushes a connecting rod endwise, one way or the other. The other end of the rod is fixed to the circumference of the circular damper plate.

This mechanism on the outside of the car has given remarkably little trouble. During road tests only one difficulty has turned up. If during a mild spell, for instance, the fire gets very low the moisture from the fuel may condense and freeze on the damper. At every divisional point when a car is being fueled or examined, the car inspector should therefore, see that the damper and connecting rod are free to move. All that he has to do is to move the lever and let it spring back. A

housing was put around the auxiliary thermostat to protect it from too much draft when the train was traveling but the mechanism which transfers the movement of the thermostat to the damper was left exposed.

The Main Thermostat

Other parts of the assembly have turned out to be quite as important as the main thermostat in the development of a means of thermostatically controlling car temperature. In point of fact, the most recently designed liquid expansion thermostat shows very little improvement in regulation when compared with the much simpler coiled bimetal thermostat, which was used in the comparatively early stages of the development.

Most of the modern schemes for thermostatic control are made feasible by the use of electricity or compressed air. On a railway refrigerator car electricity is not available. The use of compressed air supplied from the braking system on each car was not acceptable to railway officers. The elementary principle of direct expansion with heat had to be considered. The expansion of a liquid was tried first, and a liquid expansion thermostat was used on the very first experiments. The device failed, but the reason for the failure was not realized until long after.

An attempt was then made to develop a thermal relay employing the heat from the charcoal heater itself to supply the energy. The thermostat was envisaged as merely opening a small flue damper. This would allow the hot gases to enter a pipe and heat a sylphon containing liquid. The expansion of this sylphon was then to be used to operate the mechanism for controlling the heat supply to the cars. Heat conduction and convection difficulties prevented the successful exploitation of this principle too.

The next attempt was made with a bimetal coil. The first coils purchased proved to be far too weak and it was only after the Callite Company prepared the largest coil that their equipment could produce that one was obtained which appeared to be adequate.

The bimetal coil as obtained from the manufacturers was made of a strip 3 in. wide, 5/32 in. thick, and about 10 ft. long. It weighed 17½ lb. It was mounted on a spindle firmly secured to the center of the coil. On the other end a light arm or pointer was securely fixed. The spindle was supported vertically in a cup which was sunk into the floor of the car. A brass bar was secured to the spindle at right angles to its axis and was used to hold the spindle from turning. Small adjustments could be made by moving the bar and so revolving the spindle through a small angle. Thus, variation in control temperature setting could be obtained. The small adjustments could be made by means of a barrel and screw arrangement as shown in Fig. 4. The barrel was turned by a long ½-in. rod operated by a small crank from outside the car, and the amount moved could be related to change in temperature setting by means of the set of gears and a dial. When the brass expanded relative to the Invar, the movement at the outer end of the coil was augmented by a light rod or pointer, which pressed on a small eccentric fixed to the light spindle carrying the flap. Fatigue in the flexible convoluted copper sheath, which enveloped the pointer, gave great trouble.

Attempts were made to stop this vibration, first with

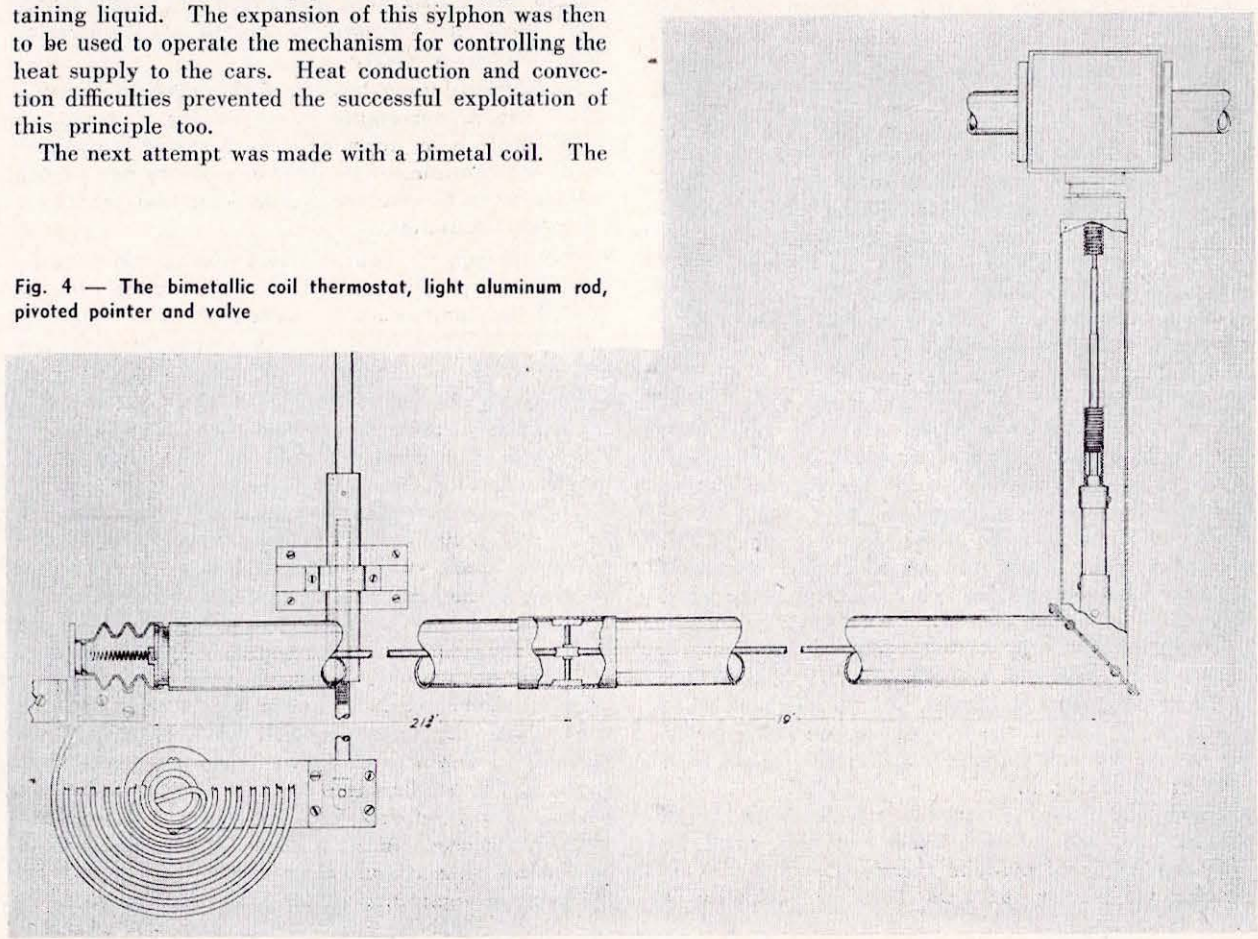


Fig. 4 — The bimetallic coil thermostat, light aluminum rod, pivoted pointer and valve

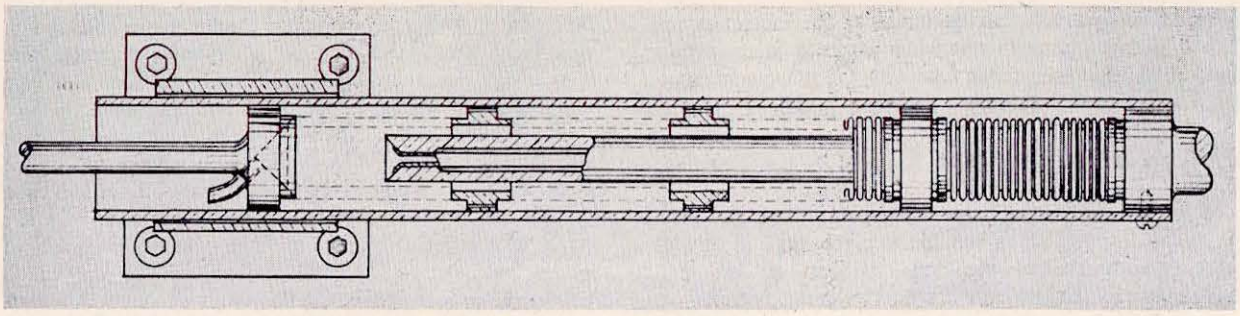


Fig. 5 — Sylphons used to convert expansion of liquid into linear thrust

a shock absorber and then with a rubber cushion. The shock absorber, which consisted of a small piston working in a horizontal cylinder, caused resistance to the free working of the thermostat. If a rubber tube can ever be found to take the place of the convoluted copper hose, this assembly might still be considered because it gave the first good results showing that an accuracy of control of ±1.5 deg. F. was a feasible objective.

The manufacturers of the bimetal coil considered it unnecessary that provision be made for the large expansions which occur during the hot summer weather, because the coil has sufficient spring to take care of this. The most recent test indicates that this is correct.

Two stops must be provided, one on each side of the end of the bimetal coil so that excessive movement at the end of the coil does not damage the pointer.

Remote Control of the Valve

The question arose as to whether heat from the valve might be affecting the bimetal coil. It was decided to set the coil away from the valve to see if it were possible to transfer the movement of the valve by means of a long aluminum rod. The light rod or pointer would not be carried by the bimetal coil at all, but would be a pivoted lever. The small movement of the thermostat would be applied at a point on the lever near to the pivot and, thus, the movement of the thermostat could be augmented to give the ⅛-in. movement at the end of the pointer per degree Fahrenheit. The pivoted pointer idea completely cured vibration difficulties.

Fig. 4 shows the coil, the aluminum rod, and the lever. Near the middle of the rod a wheel bearing took out the sag. This bearing was arranged so that it would not be exactly at the nodal point at the middle of the rod. An accordion rubber tube through which the aluminum rod must pass was provided to keep dirt out of the metal tube which protected the rod.

Recent results with this assembly on an unaccompanied transcontinental test trip provided a regulation of the ±2 deg. from Kamloops, B.C., to Montreal, Que., except at the start of the trip and at one point toward the end of the trip. Outside temperatures ranged from —5 deg. to 35 deg. F.

There was always a certain springiness about the bimetal coil, and it was hoped that this could be overcome by a rod-and-tube thermostat. The idea of pivoting the pointer had opened up the possibility of using the very small, but definite, expansion of a brass rod the full length of the car when the temperature changes by 2 deg. F. Taking advantage of the fact that the car was a clear 35 ft. long, it was possible to get four-thousandths of an inch per degree at the point where the force of the expansion was applied on the lever. Using a forty to one ratio, this could be augmented to about ⅛ in. at the end of the lever, which is needed at the valve-flap eccentric.

On paper, this offered very favorable prospects of improving on the coiled bimetal-strip thermostat, but, unfortunately, the assumption had been made that the brass and Invar were not appreciably elastic, a justifiable assumption only if the rod and tube are of stout enough metal. Had much stouter rod and tube material been used, the response to change of temperature might have been larger.

Furthermore, the expansion of the metal in summer, with a rise in temperature of, say, 80 deg. F., could not in this instance be prevented from damaging the pointer by merely providing stops. It was necessary not only to provide stops to save the pointer, but also to protect the stops, themselves.

The attempt to use a direct thrust rod-and-tube thermostat led into mechanical complications and, although the final assembly worked as well as the bimetallic coil, it was not an improvement in simplicity and economy.

Designing the liquid expansion thermostat was a comparatively simple step to take after the rod-and-tube thermostat had been worked out. The only really different feature about this assembly was the sylphon arrangement which converted expansion of liquid into linear thrust. Provision had to be made for the large volume of liquid which would be pushed out in summer weather. At the same time, accurate thermostatic control demanded as large a linear movement as possible for a change in temperature of 2 deg. F. These two conflicting conditions were met by putting four small diameter sylphons on end, as shown in Fig. 5. In order to guide and couple the four sylphons simultaneously, rings specially machined to slide in a tube were provided as shown in Fig. 5. The liquid used for the expansion was hexane. It was contained in a brass tube 2 ft. long and ½ in. in diameter. Since much greater expansions could be obtained with a liquid than with a 35-ft. brass tube, the point of application of the expansion force on the

pivoted pointer could be much farther from the pivot. A slight change had to be made in the connecting link to allow for the much greater summer expansion. This amounted to providing a much longer distance on the slope of the V notch in a metal block for the riding up of a small U-shaped block held in the notch by spring pressure, in hot weather. Contraction in cold weather was not important, however, because when the liquid contracted against a force exerted by the stop, vacuum could be formed if necessary without damaging anything. Slight changes were also made in the mechanism for adjusting the control temperature setting.

Results with this thermostat on the test trip in November, 1948, indicate that this assembly controlled the car to ± 1.5 deg. F.

It was the information given by railway employees on the change observed on the underslung heater cars over a number of years that led to the equipping of the experimental cars with new heaters for the test trip. When these old heaters were taken off in preparing the cars for the test trip, they were certainly in poor condition and two of them had large leaks in the casing. By putting on new heaters, it was expected that plenty of heat would be available, but it was disappointing to find later that the new heaters did not entirely remedy matters. The cars were still not getting enough heat for 40-below weather.

If a car does not heat, there are the following possible causes: (on any underslung heater car) poor fire caused by bad charcoal; poor fire caused by inefficient draft; poor insulation or air infiltration; poor delivery of heat from heater pipe due to system not being full of Prestone solution; (on thermostatically controlled cars) obstruction to flow of liquid at valve seat; wastage of heat to by-pass pipe due to leaky valve or mixing of cold liquid from by-pass pipe with warm liquid from main heater pipe, at the junction of the return pipes.

It seems possible that the last two causes on thermostatically controlled cars may be interfering with their performance and may account for the fact that in severe subzero weather an ordinary car can come through all right, while a thermostatically controlled car fails to maintain its temperature even with the damper wide open.

There are three steps still to be taken in the development of perfect thermostatic control of heated railway refrigerator cars: (1) the improvement of the draft system on the underslung charcoal heater; (2) the elimination of as many screwed joints as possible in the piping system; (3) the arrangement of piping to permit the valve to be put underneath the floor of the car.

The problem of providing a mechanical thermostat seems to be adequately solved.

FREIGHT SERVICE EFFICIENCY AT NEW PEAK

I.C.C. statisticians show most data on train performance for 1949 surpass comparable periods in earliest years—Railroads' annual income estimated for new rate and work-week basis

Most of the "efficiency indicators" among freight-train operating data continue to reflect improved performance, according to a comparative analysis for the five months ended with May for 1949 and selected earlier years. The study is summarized in the August issue of the "Monthly Comment" of the Bureau of Transport Economics and Statistics of the Interstate Commerce Commission, and is based on statistics for Class I railroads.

As a result of a sharp decline in the volume of traffic, freight traffic density as measured by net ton-miles per mile of road per day was 9.7 per cent less in 1949 than in the comparable 1948 period, but it was 89 per cent above 1939 and 31 per cent above the 1929 figure. The 1949 figures likewise were less favorable than those for the 1948 five months for two important indicators of equipment utilization, car-miles per freight-car day and net ton-miles per freight-car day. On the other hand, such significant performance averages as cars per train, net tons and gross tons per train, gross ton-miles per train-hour, and train speed all were higher in 1949 than in the 1948 period, and also were higher than in the

Freight Train Service Operating Averages for Class I Railroads

Item	Five months ended May 31 1949	1948	1944	1939	1929
Net ton-miles per mile of road per day	7,137	7,902	9,477	3,772	5,467
Car-miles per freight-car day	40.4	43.0	49.6	29.2	31.8
Freight car-miles per train-mile:					
Loaded	35.4	35.2	34.1	29.2	29.5
Empty	20.5	18.1	18.3	17.9	17.2
Total	55.9	53.3	52.4	47.1	47.7
Gross ton-miles per train-mile[1]	2,511	2,434	2,378	1,885	1,822
Net ton-miles per train-mile	1,144	1,149	1,122	747	783
Net ton-miles per freight-car day	826	920	1,062	464	533
Gross ton-miles of locomotives and tenders per locomotive-mile	293	286	264	251	218
Net ton-miles per loaded car-mile	32.3	32.4	32.9	25.6	26.5
Per cent loaded of freight car miles	63.3	66.0	65.1	62.0	63.2
Train-miles per train-hour	16.8	16.0	15.6	16.9	13.1
Gross ton-miles per train-hour[1]	41,752	38,341	36,624	31,682	23,827
Per cent unserviceable:					
Freight locomotives	16.3	16.1	12.3	31.0	16.8
Freight cars on line	5.0	4.3	2.4	12.0	6.2

[1]Excludes locomotives and tenders.

first five months of 1944, the year of peak war traffic.

As indicated in the table (reproduced from the "Comment") a "marked improvement" is shown by the 1949 figures for these train performance indicators as compared to the equivalent periods of 1929 and 1939. Though train speed was slightly greater in 1939, to offset this, the train load (i.e., net ton-miles per train-mile) increased 53 per cent in 1949 over 1939. The net ton-miles per freight-car day for 1949 averages less than in either 1948 or 1944, but this important measure of operating performance was 78 per cent above the 1939 period's average and 55 per cent above that for 1929.

The "Comment" points out that gross ton-miles per train-hour is "frequently referred to as the best single measure of railway freight transportation efficiency, since it combines the speed factor with the total weight of the train behind the locomotive and tender and reflects the average performance for each hour of train operation."

Rising Cost of Fuel

Another section of the "Comment" reports the quantities and unit costs of fuel purchased by the Class I roads in the first five months of this year, with comparable data for the same period of 1948. Here it is pointed out that "the average cost of coal per net ton at the mines for the month of May has increased each year since 1941 by from 6 to 99 cents per ton. With qualifications for 1942 and 1943, the coal price index rose more rapidly than those for either fuel oil or Diesel fuel through 1946, but in 1948 the two latter outstripped the former by a substantial margin. In 1949, however, the May price of coal showed another advance over May, 1948, while between the same two months the prices of oil and Diesel fuel fell almost precipitously. These changes carried the fuel oil and Diesel fuel indices substantially below the coal index in May, 1949, or to a position similar to that of May of 1944-46."

The unit costs of fuel purchased by Class I roads in May of the respective years are given in the "Comment" as follows: For coal f.o.b. mines, per net ton, 1941, $1.99; 1944, $2.65; 1946, $3.00; 1948, $4.30, and 1949, $4.36; for fuel oil, per barrel, 1941, $0.88; 1944, $1.09; 1946, $1.24; 1948, $2.39, and 1949, $1.48; for Diesel fuel, per gallon, 1941, 4.29 cents; 1944, 5.21 cents; 1946, 5.27 cents; 1948, 10.09 cents, and 1949, 8.75 cents. Taking May, 1941, as 100, the May, 1949, index figures for railroad fuel prices are 219 for coal, 168 for fuel oil, and 204 for Diesel fuel.

In the first five months of this year the Class I roads purchased at the mines 21.6 per cent less coal on a quantity basis than in the same 1948 period and 28.4 per cent less fuel oil. On the other hand, they purchased 1 per cent more electric current and 29.9 per cent more Diesel fuel. The "Comment" remarks that the decrease in the quantities of coal purchased "may be presumed in a large degree" to reflect the increase in Diesel fuel purchases.

The "Comment" includes also a comparison of the intercity motor traffic of carriers subject to commission jurisdiction (except local truckers) with the total traffic of Class I, II and III railroads for the years 1944 through 1948, using preliminary figures for the latter year. These data show that "the proportions of both ton-miles and passenger-miles of motor carriers have increased consistently each year in the period 1944-48 as the rail share has declined." Of the combined railroad and regulated motor revenue ton-miles, the railroads' portion declined from 96.45 per cent in 1944 to 93.73 per cent in 1948, while of the combined railroad and motor revenue passenger-miles the railroads' portion declined from 78.04 per cent in 1944 to 63.56 per cent in 1948.

Truckers' Ton-Mile Revenues

In this connection the "Comment" remarks that "it may be observed that if the ton-miles of all non-regulated for-hire carriers, together with those of private carriers, had been included, the proportions of truck ton-miles would have been materially greater. Moreover, the revenue importance of the motor carrier traffic is much greater than is indicated by the foregoing percentages. Comparisons of the revenues per ton-mile for Class I motor carriers with those of Class I railways show that the motor carrier revenue per ton-mile has been between 3.13 and 4.47 times the revenue per rail ton-mile for the last several years. The contract carriers report ton-mile revenue of 3.13 to 3.95 times that of the railroads and the common carriers 4.25 to 4.47 times."

Also included in the August issue of the "Comment" are tabulations designed to show the effect of the permanent freight rate increases authorized by the commission in Ex Parte No. 168 (summarized in another article in this issue) on the rate level and on the income account of the Class I roads for the "constructive year 1949," giving effect to both the 40-hour week for non-operating employees and the full rate increase for the entire year. The computations as tabulated are based on "a moderate decline in the level of fuel, material and supply prices during 1949, and upon the present going wage level" adjusted to the 40-hour week basis. "They presuppose that generally similar rate increases will be permitted by state authorities on intrastate traffic, or may become effective otherwise."

Income Account of Class I Railroads for the "1949 Constructive Year"

(Millions of dollars)

Item	United States	Eastern district	Pocahontas region	Southern region	Western district
Revenue ton-miles (billions)	575.0	201.8	51.7	80.2	241.3
Revenue passenger-miles (billions)	35.0	17.5	0.8	4.6	12.1
Total operating revenues	$9,270	$3,734	$526	$1,264	$3,746
Freight	7,722	3,000	481	1,060	3,181
Passenger	858	450	21	110	277
All other	690	284	24	94	288
Total operating expenses	7,603	3,128	407	1,058	3,010
Operating ratio — per cent	82.02	83.77	77.38	83.70	80.35
Total taxes:	824	285	68	111	360
Payroll	275	113	15	40	107
Federal income	229	51	34	26	118
All other	320	121	19	45	135
Equipment and joint facilities net rents	Dr. 160	Dr. 78	Cr. 15	Dr. 7	Dr. 90
Net railway operating income	683	243	66	88	286
Rate-base value	20,978.6	8,590.5	1,099.0	2,875.4	8,413.7
Rate of return — per cent	3.26	2.83	6.01	3.06	3.40

I. C. C. Allows $293-Million Rate Increase

Including the interim adjustment, the railroads have been granted a 9.1 per cent advance above the 1948 level — Increase will "aid" railroads in meeting added cost of 40-hr. week — Initiation of measures "to retain and increase traffic" responsibility of carrier management, commission says

By a report in Ex Parte No. 168, made public August 11, the Interstate Commerce Commission has authorized the railroads to make general increases in freight rates which it estimates will be, on the average, about 3.7 per cent above the present rates, which were established on an interim basis in January of this year pending final action by the commission on the railroads' petition for authority to effect increases amounting to about 13 per cent above the rates effective at the end of 1948. Including the interim increase, the commission has approved in the present proceeding advances in rates amounting to about 9.1 per cent from 1948 levels.

Effective with 40-Hr. Week

The higher rates will become effective September 1. The commission's order provided that they could be applied on 15 days' notice, and tariffs to that effect were issued by the railroads August 15. In a notice accompanying the commission's report, Secretary W. P. Bartel stated that, on the basis of the latest estimates of traffic volume submitted for the record in the proceedings (575 billion ton-miles and 35 billion passenger-miles), the railroads will receive an estimated $293 million a year in additional revenues as a result of the most recent increase, which is in addtion to the increase of $391 million in annual revenues estimated to result (on the revised forecast of traffic volume) from the interim rate advances allowed December 29, 1948 (see *Railway Age* of January 8, 1949, page 242).

The anticipated additional revenue, the commission's report said, will "aid" the railroads in meeting the added cost of the 40-hr. week for non-operating employees, which likewise becomes effective September 1. In recommending the establishment of the shorter work-week, the emergency board estimated the additional cost at $450 million annually, but the commission, applying the later and lower estimates of traffic volume, estimates the additional outlay attributable to the 40-hr. week as $380 million a year.

The new rates in the several territories will exceed those prevailing in 1948—when the railroads' petition was filed—by the following percentages: Within and between Eastern and Southern territories, 10 per cent; within Zone I of Western Trunk-line territory, 9 per cent; within the rest of Western territory, 8 per cent, and interterritorially, except between Eastern and Southern territories, 9 per cent. In each instance these increases are 4 percentage points greater than the interim increases effective in January. The increases are held to maximums of 9 cents per 100 lb. on fresh fruits, vegetables and melons, 6 cents per 100 lb. on sugar, lumber and articles taking lumber rates, 18 cents per ton on lignite, and 35 cents per ton on coal, coke and iron ore. No increases are permitted on protective services, or on iron ore moving to upper lake ports.

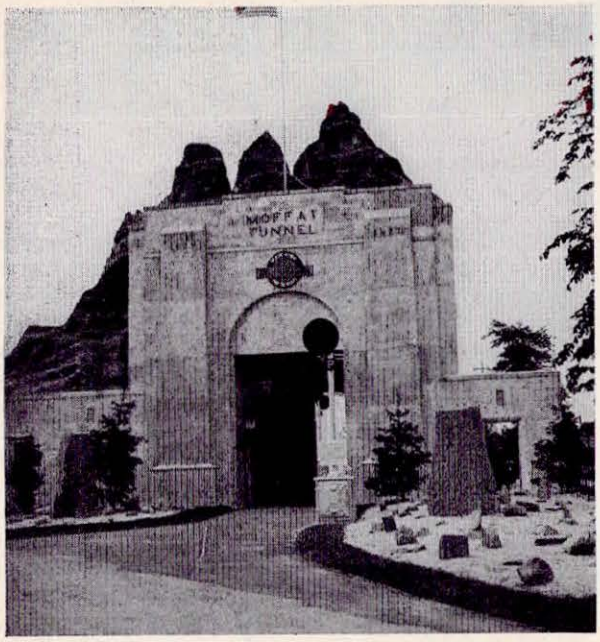
Rates Up $3 Billion Since War

In arriving at the estimated increase in revenues of $293 million a year, it was estimated that roads in the Eastern district would benefit to the extent of $112 million; Pocahontas region, $18 million; Southern region, $42 million, and Western district, $116 million. In addition, $5 million is expected to result from miscellaneous additional charges. These figures were based on the assumption that similar increases would apply in intrastate rates. Computed on an annual basis on the current traffic level, the total cumulated increase in freight revenue since June 30, 1946, including the current authorization, will be about $3,086,000,000, or 57 per cent, according to the commission's estimate. "The Eastern carriers have been relatively the greatest beneficiaries in this increase," it was pointed out.

Rates on milk and cream in passenger or freight service, and charges for switching, collection or delivery, trap and ferry car service, diversion or reconsignment, and accessorial and terminal services are, in general, subject to the percentage increases applying to general freight rates. Water carriers and freight forwarders were authorized to increase their rates by the percentages applying to the railroads.

No Dissenting Opinions

The decision authorizing the rate increases represented the "unanimous judgment" of the commission, the report indicated, but "that does not imply that there have not been differences of opinion among us as to details." The commission reminded the carriers of their "duty in initiating and maintaining rates that comply with the act," and further admonished them "in good faith and with all possible promptness and in a



The Denver & Rio Grande Western hauled to the site of its Moffat Tunnel exhibit at the Railroad Fair tons of the same red rock blasted from the original tunnel

spirit of cooperation to devise and suggest for the consideration of the shipping public the rates which will in their judgment correct maladjustments" in competitive relations among shippers.

In its consideration of the railroads' petition for approval of a general increase of 13 per cent above the 1948 rate level, the commission was faced with several "general considerations," the report indicated. One of these was the objection raised by opponents of the increase that the rate increase would not produce a corresponding revenue increase because the railroads would have less traffic either because the higher price of commodities would reduce commerce or because more freight would be diverted to other forms of transportation or because they would have shorter hauls as a result of relocation of industry and the use of substitute products.

Traffic Diversion "Formidable"

"There was a substantial unanimity" among shippers who appeared in the proceedings, the commission said, "in urging that any further increase would be self-defeating in that the petitioners [the railroads] would realize less instead of more gross revenue because of the loss of traffic. As to certain traffic, it was asserted that any further increase would create a burden greater than could be borne and that movements would dry up. But more commonly the testimony and argument related with statistical definiteness the marked and increasing trend from railway to highway transportation which is affecting large tonnage and almost every industry and commodity. The record also reveals diversions of important traffic from the rails to other transport media such as pipe lines and waterways. . . .

"The down-trend in tonnage handled by rail," the report continued, "and the concurrent up-trend in traffic moved by highway, developed in detail in the testimony relating to many diverse commodities, and coming from all sections of the country, is too impressive and formidable to be ignored. The greater flexibility of motor carrier service is doubtless a factor which, even at rates equal to those of the railroads, would attract some consequential tonnage away from rail service. But much is shown in the record to the effect that successive increases in rail rates had driven, and the cumulated results is [sic] now driving, traffic off the rails and onto the highways, since in large measure the motor carriers have not increased their rates proportionately as the rates of the railroads have been increased. In a highly competitive economy to which this country appears to be returning, differences in rates assume increasing importance to the commercial community, and it is not mere coincidence that the sharp up-trend in diversions from rail to highway occurs simultaneously with the conversion of our economy from a seller's to a buyer's market.

"Undoubtedly the process of compounding several general increases upon the rate structure will retard or prevent the movement of some particular traffic and tonnages, and has had such effect following earlier decisions."

The commission acknowledged that in 1948 the railroads "obtained more revenue from less traffic than in 1947, and the increases heretofore authorized have not, thus far at least, been self-defeating; but the trend is not a healthy one," it went on to say, "either for the railroads or for the nation. The initiation of measures, both in pricing and service, to retain and increase their traffic is plainly a responsibility of carrier management. As in the past, we look to petitioners to make good in letter and spirit their engagement to examine these situations individually and prudently, to reach solutions and readjustments which will promote the fullest development of commerce at lawful rates."

Apart from the possible effect of further rate increases on railroad revenues, the report reviewed the contention of opponents of the increases that the "present economic situation" would not permit higher freight rates, either because they could not be borne by the "body politic" or because they would, it was feared, have an inflationary effect on the general price structure. "We must deal with conditions as they are and to the extent that they are reasonably foreseeable," the report said. "In general, in our decisions we have endeavored to consider the relation of rates to prices, but have looked beyond prices to the conditions which produced them, and have not viewed the price level as such as controlling. . . . Railroad freight charges, though an important member of the family of prices, are prices for services, and they cannot reflect the effects of all price-making influences to the degree indicated by an average of commodity prices."

Traffic Estimates Revised

In its estimates of business conditions in the near future, the commission took into consideration not only predictions in the record, but also the possible effect of the 3-day work-week in the coal mines and threatened strikes in the steel and automobile industries. "In

terms of potential and future railway traffic and revenues," it held, "the implications of these situations is serious." In arriving at estimates for a "constructive 1949 year" of traffic totals of 575 billion ton-miles and 35 billion passenger-miles it termed them "reasonable" and "unlikely to be greatly exceeded, although the results for the full year 1949 may conceivably be lower in view of the present uncertainties."

On the basis thus set forth the commission calculated that operating revenues for the full year 1949 should be about $8,995 million, of which $7,447 million would be produced by freight operations, $858 million by passenger operations, and $690 million from other sources. Total operating expenses, including the cost of the 40-hr. week for the last four months of the year, were estimated at $7,350 million. The net railway operating income in a "1949 constructive year," giving effect to the 40-hr. week after September 1, would be $677 million on this basis, or a rate of return on the rate-making valuation of 3.23 per cent. These calculations were based on rates in effect at the time the report was prepared.

Passenger Deficit Appraised

The report noted that "with very few exceptions the attitude of the shippers and public bodies appearing as protestants" when the railroads' petition was under consideration was "one of forceful opposition to any further increase in freight rates and charges, and many asked for the withdrawal of and cancellation of the interim increases." Among other contentions discussed in some detail in the report is that one to the effect that shippers should not be required to bear the burden of passenger-service deficits, it being shown that, for the railroads as a whole, on the basis of apportionment of revenues and expenses prescribed by the commission, "the passenger service presently appears to be conducted at a substantial loss."

Saying that "if passenger service inevitably and inescapably cannot bear its direct costs and its share of joint or indirect costs, we have felt compelled in a general rate case to take the passenger deficit into account in adjustment of freight rates," the commission pointed out that "it would be erroneous to assume that these operating deficits in the passenger service have been attributable solely to loss of passengers to private passenger automobiles and other competing forms of transport. Besides passengers, the railroads are also engaged extensively in the transportation of physical things or commodities in passenger trains. Thus the railroads derive a substantial volume of revenue, aside from passenger fares, from the carriage or baggage, mail, express, and milk, and the expenses appertaining to the transportation of these physical things are borne by the passenger service and not by the freight service. . . .

"Adequate data are not presently available for determining how much of the passenger deficit is properly attributable to the transportation of passengers, and how much to the 'head-end' carriage of physical commodities or things," the report continued. On the basis of available data, however, it was shown that "the transport of things in the passenger service has shown a net operating deficit in every year from 1936 through 1948, whereas all other passenger-service transportation, which is essentially the transportation of persons, has shown a substantial net operating income for the five years 1942 through 1946. Moreover, the head-end deficit from the passenger-train transportation of things has been steadily, though irregularly, increasing." In 1948, as the I.C.C. formula is applied, the net operating deficit resulting from head-end traffic was $373 million, or substantially what the commission has estimated as the additional annual cost of the 40-hr. week. In the same year the net operating deficit in passenger operations attributed to the transportation of persons was $187 million. Much of the so-called passenger deficit, therefore, is attributable to the transportation of commodities, the report continued, and these commodities move in passenger trains, not because there is any essential difference in character in things handled in freight and passenger service, but "primarily for reasons of expedition of service."

No General Efficiency Probe

Conspicuous among those objecting to the rate increases was counsel for the secretary of agriculture, who represented that "agriculture cannot reasonably bear the increases sought because of declining agricultural prices."

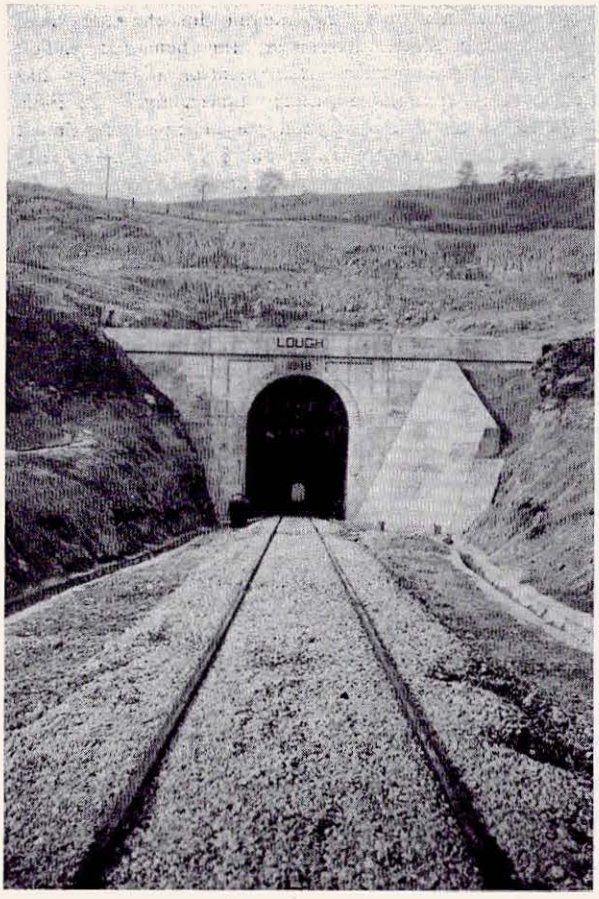
He went further, however, and contended that the railroads are operated inefficiently, and that the commission should conduct a general investigation into their operations to determine whether or not they are being operated economically, meanwhile, withholding its decision on the petition in Ex Parte No. 168. This request was denied by the commission in its report authorizing the interim increases, and the same position was taken in the present report, despite additional evidence and argument by the secretary's counsel.

Among his reasons for pressing the motion for a general investigation, the secretary's counsel had alleged that the railroads in recent years had been relatively inefficient in their utilization of freight cars, as indicated by the "higher ratio of empty to loaded car-miles, the transportation delays in freight yards, at interchange points, and in terminals, and the comparatively light loading of less-than-carload shipments."

After reciting the railroads' arguments that the criticism of their efficiency is unwarranted, the commission added, "In our recent annual report to the Congress, we submitted data which indicated that the operating efficiency and the financial position of the railroads are substantially better than they were in the period following the first world war. . . . It is manifest that investigations of the nature and scope suggested by the secretary of agriculture could not be undertaken without large appropriations, which are not available to us for the purposes indicated. . . . Since June, 1933, Congress has authorized at a total expense of $2,809,581, of which $1,121,500 came directly from the United States Treasury, two extensive studies similar to the investigation here sought by the secretary of agriculture; and these studies consumed slightly over 6 years, or more than one-third of the entire period since the middle of 1933. We are not convinced from the results of these previous investigations or from a consideration of present conditions that another investigation of this nature would be warranted at this time even if substantial funds for that purpose were available."

TOUGH TUNNELING ON NEW COAL LINE

Elk Creek spur of the Baltimore & Ohio opens new fields containing an estimated 100,000,000 tons of high grade fuel—Difficult construction of 1,517-ft. bore through abandoned mine workings was feature of the project



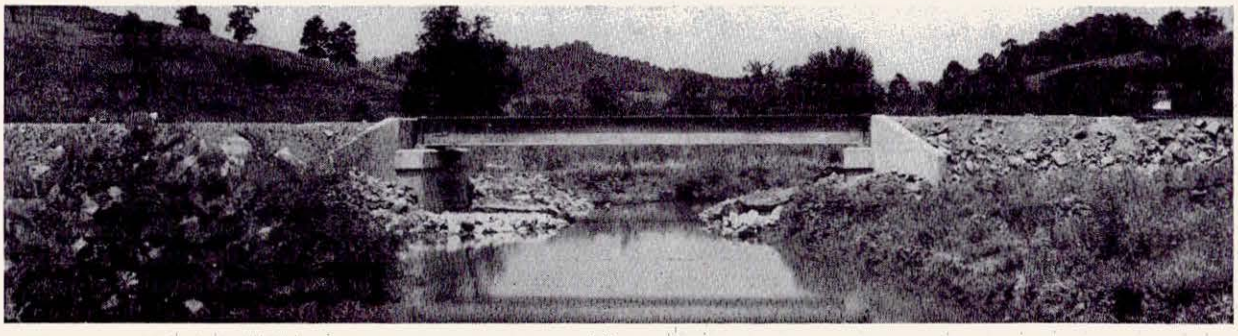
View of the east portal of Lough tunnel on the Elk Creek spur. Notice unusual wing wall on the north side of the track

The Baltimore & Ohio has recently placed in service a new 8.5-mile coal line, known as the Elk Creek spur of the Berryburg branch, the construction of which, particularly in a 1,517-ft. tunnel, proved unusually difficult. The new line extends from Berryburg, W. Va., the terminus of the branch of that name, to a point known as Overfield, where the Compass Coal Company has begun extensive mining operations. The new coal field opened by the spur is estimated to contain 100,000,000 tons of excellent bituminous coal, suitable for coking and general industrial use. The cost of the project was $3,365,000.

The Elk Creek spur extends in a generally southwest direction from Berryburg. Directly west of this town it crosses the divide between the Tygart River and the Elk Creek watersheds by means of a 1,517-ft. single-track tunnel. Construction of this tunnel proved to be unusually hazardous because the bore passes through the workings of an old coal mine that was abandoned approximately 40 years ago, and called for many special precautions.

West of the tunnel, the line follows the course of a stream known as Stewart run for a distance of 4.4 mi., before reaching Elk creek, which it follows for an additional 3.5 mi. to the tipple of the new mine. The section of line along Stewart run is on a grade of 1.5 per cent compensated, ascending to the east. The remainder of the west end of the line, along Elk creek, is on a grade of 0.5 per cent compensated, ascending eastward. Curvature on the line is restricted to 10 deg.

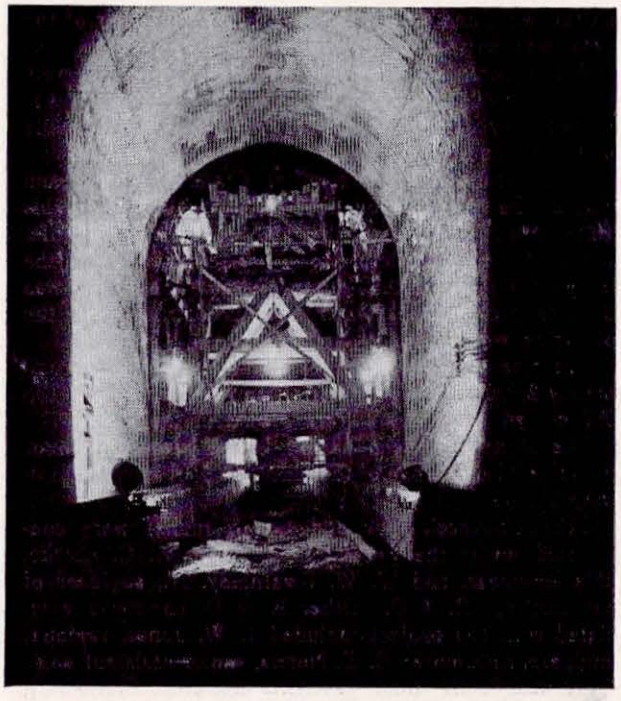
Specifications called for a 30-ft width of roadbed in cuts and 20 ft. on fills. Heavy earthwork was involved at many points and the total quantity of excavation amounted to approximately 1,000,000 cu. yd. The three



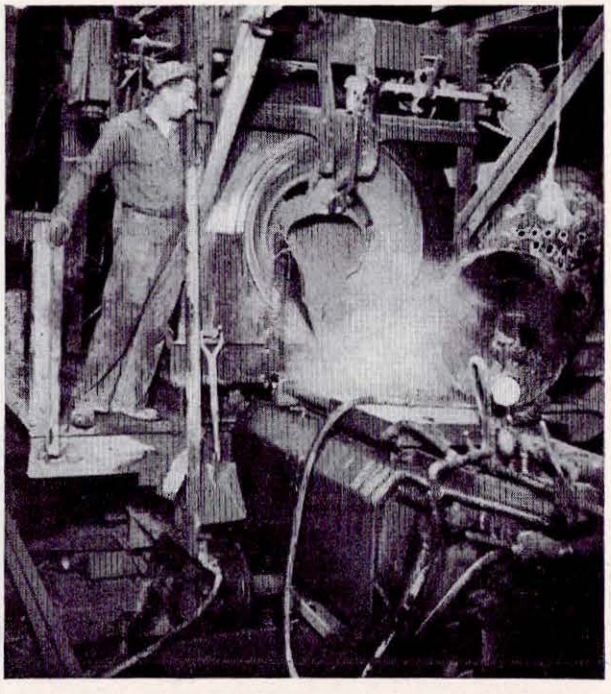
One of the new bridges constructed on the Elk Creek spur

The liner system of the tunnel consists of specially-formed steel H-beams set on I-beam mud sills and bolted at the crown of the arch

Considerable difficulty was encountered in tunneling because the new line crosses abandoned mine workings such as the one shown in this view



The concrete interlining of the tunnel was placed in 60-ft. sections using the jumbo form pictured here



Tunnel concrete was delivered to the forms by means of a Presdweld concrete gun, shown receiving a charge from the mixer

heaviest cuts on the line called for the removal of 74,000 cu. yd., 80,000 cu. yd. and 91,000 cu. yd., respectively. The largest fill—70 ft. high—contains approximately 140,000 cu. yd. of material. This fill is placed over an 8-ft. by 8-ft. concrete box culvert, 286 ft. long.

The Sutton Company, Radford, Va., and the Empire Construction Company of Baltimore, Md., held the grading, drainage and bridge contracts and employed a number of units of modern earth-moving equipment on the work.

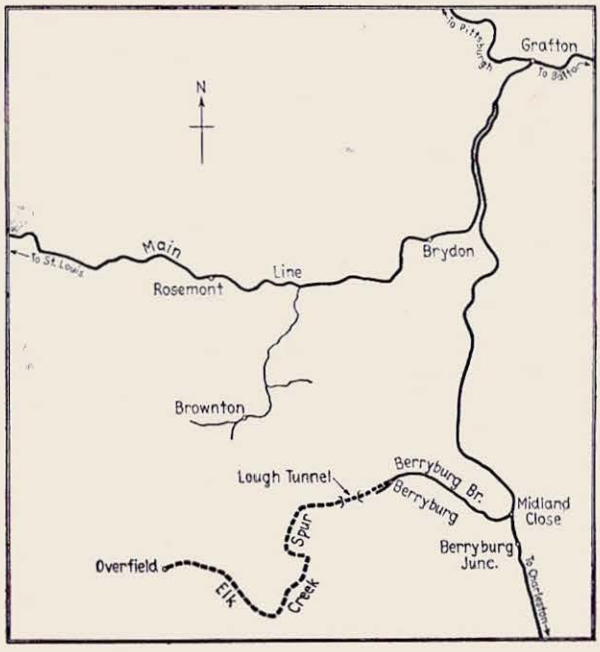
The track specifications called for new treated ties, fully tie-plated, laid on cinder ballast. Rail weighing 131 lb. per yard was used in the tunnel and on the 1.5-per cent grade, west of the tunnel, along Stewart run. The remainder of the line was laid with 100-lb. rail. The track was laid by A. S. Wikstrom, Inc., Skaneateles, N. Y.

Tunnel Construction Was Troublesome

The 1,517-ft. single-track tunnel is the longest to be constructed on the B. & O. in recent years. As mentioned, it passes directly through the workings of an abandoned coal mine, which resulted in a number of interesting construction problems and considerable danger for the workmen engaged on the project.

The design of the tunnel provided for a steel rib liner system, furnished by the Commercial Shearing & Stamping Co., Youngstown, Ohio, which was covered with a 20-in. inner lining of concrete. The clear inside width of the tunnel is 18-ft. between side walls, while the height is 24 ft. from the top of rail to the crown of the arch. The side walls are vertical to a height of 15 ft. above the rails.

The Bates & Rogers Construction Corp., Chicago, held the contract for the tunnel and its approaches. Using a 14-drill jumbo and drilling 70 holes in the full face section, 10 ft. deep, the excavation proceeded at the rate of 20 ft. a day in good ground or rock, but in many instances progress was much slower, at times being only two feet a day. The liner system consisted of two-piece sets of 8-in. H-beams, bolted at the crown. They were set in place directly after each mucking operation, resting on and bolted to mud sills made of pairs of 8-in. I-beams, yoked together.



The Baltimore & Ohio lines in the vicinity of Grafton, W. Va., showing the location of the Elk Creek spur

In the Old Mine Workings

Where possible the liner ribs were set on 4-ft. centers, being spaced and braced with timber struts and steel tie rods. Timber lagging was used behind the sidewall ribs, while pressed-steel liner plates were used on the arch. However, because of the generally bad conditions that predominated in the tunnel, it was more frequently necessary to place the liner ribs on 2-ft. centers. When the ribs were placed on 2-ft. centers, channel purlins were used in place of the tie rods and timber struts.

When the tunnel excavation reached the mine rooms, which crossed on a flat skew, the bad roof conditions encountered, because of old falls in the mine, caused the excavation work to be tackled in a different way. The good roof was about 15 ft. above the top of the steel arch and it was necessary to crib from the top of the tunnel steel to the roof. At these times the drifts were cut to enable the placing of an 8-ft. section of mud sill. Then a 2-ft. round was drilled and shot so that one rib set could be placed and cribbed. This procedure was followed until the end of the mud sill was reached and then the drifting process was started again.

Concrete lining operations were not started until the tunnel excavation work was finished. The ballast wall and the side walls to a height of six feet were poured first, pouring being done in 60-ft. sections. When the concrete had hardened sufficiently, a traveling form for the balance of the tunnel section was run along the ballast wall, and the concreting of the remainder of the arch was completed.

A Presdweld pneumatic gun was fed from a concrete mixer placed in front of the form. Concrete was batched dry outside the tunnel and brought to the site of mixing on flat cars.

A terra-cotta half-round gutter was installed on each side of the tunnel throughout its entire length. Drains were installed in each of the mine rooms with the inlet beyond the concrete lining to insure that water from the mine would reach the gutter system. This also was done to prevent back water from accumulating in the old mine workings.

The steel liner used in the tunnel involved approximately 2,500,000 lb. of material, and approximately 13,000 cu. yd. of concrete were placed in the lining.

The tunnel has been named Lough tunnel in honor of Delbert Lough, one of the oldest B. & O. employees in the vicinity.

The Elk Creek spur and Lough tunnel were constructed under the general direction of A. C. Clarke, chief engineer, and W. W. Gwathmey, Jr., engineer of construction, B. & O. Other B. & O. engineers associated with the project included J. W. Jones, regional engineer, Baltimore; G. E. Norris, senior assistant engineer, and S. D. Dunn, assistant engineer, Clarksburg W. Va., and J. E. Scharper, resident engineer, Clarksburg.

State Commissioners Consider Railroad Tax and Passenger Problems

Craemer and McDonald propose "joint committee" for study of rail passenger-service deficits — Splawn and Edwards also address 61st annual meeting of N.A.R.U.C.

Sharp criticism of the continuation of wartime federal excise taxes on transportation, and growing concern over mounting deficits in railroad passenger service, highlighted the sixty-first annual meeting of the National Association of Railroad and Utilities Commissioners at the Hotel Cleveland, Cleveland, Ohio, from August 8 through August 11—a convention which was also addressed by Interstate Commerce Commissioner Walter M. W. Splawn and by Dr. Ford K. Edwards, director of the I. C. C.'s Bureau of Accounts and Cost Finding.

Favor Repeal of Excise Tax

The state commissioners' concerted attack on the federal excise taxes of 15 per cent on passenger fares and 3 per cent on freight bills got under way on the opening day of the meeting, when J. F. Craemer, of California, in his address as president of the association, told his colleagues that "These taxes were imposed to reduce the use of the rails by civilians during the war. Regardless of the wisdom of this action the use of the rails today affords no occasion for such a deterrent. . . . American's Class I rails in 1948 lost $560 million in their passenger operations. This becomes all the more distressing when we realize that the American public had to pay a 15 per cent tax for the privilege of contributing to these losses. It seems inconceivable that we would continue to tax any segment of business 15 per cent which is operating at a loss."

Mr. Craemer's views were echoed by W. R. McDonald, of Georgia, a past president of the association, in an address delivered on the closing day of the convention on the subject of Mounting Railroad Passenger Service Deficits. "Another major factor bearing on the diversion of passenger traffic from the rails," Mr. McDonald said, "is the continued assessment of the so-called war-time transportation tax. . . . This association is already on record as favoring repeal of the transportation tax and this effort should be vigorously prosecuted as an important element in the solution of the passenger problem."

The committee on legislation, of which H. L. Hooker, of Virginia, was chairman, recommended readoption of the association's 1948 resolution favoring repeal or reduction of the excise taxes, redrafted to include specific reference to bills for such purposes now pending in Congress and to the elimination of similar taxes in Canada.

Both Mr. Craemer and Mr. McDonald also expressed concern over what the former called "the growing burden of passenger traffic losses," and urged "joint effort" by the N. A. R. U. C., the I. C. C. and the railroads to develop, as Mr. Craemer expressed it, "overall policies and programs which can be put into effect uniformly, on a nationwide basis, in an effort to reduce, substantially, these deficits from passenger operations." "A concerted and aggressive effort to deal with these deficits is urgently needed," he said, adding that "the state commissions are not equipped to undertake this tremendous task single-handed. It is their responsibility, however, to assist and cooperate in any such project."

Mr. McDonald, speaking particularly on the subject of passenger service losses, called for appointment of a "special committee" to cooperate with the I. C. C. in "study of the passenger deficit problem." "The railroads," he said, "should be invited to set up a committee to cooperate in all phases of the study and to participate in all joint committee meetings and discussions. Such an undertaking would certainly develop all of the facts and information necessary for a precise diagnosis of the railroads' passenger transportation ills, and with that accurate diagnosis we should be able to find the remedy that would effectuate at least a partial cure."

Prior to making that recommendation, Mr. McDonald had discussed the passenger traffic problem in considerable detail, as "a problem which is now perhaps the foremost concern of the railroad industry and the greatest threat to the solvency of our railroads as private enterprises," but also as one which "cannot be dealt with sectionally nor . . . by state regulatory commissions alone."

"The solution," he stated, "must involve both increased revenues and reduced expenses. So far the railroads' efforts to reduce expenses have been largely concentrated on the abandonment of selected passenger trains. . . . To state regulatory commissioners . . . the abandonment of all passenger service is a remedy to be considered only as a last resort — if at all."

Describing reduction in revenue from transportation of passengers as "most responsible for the acuteness of the present problem," and declaring that "profitable pas-

senger train operation is dependent upon volume," Mr. McDonald cited the successful operation by the Central of Georgia of short-run, low-fare coach streamliners (described in the *Railway Age* of August 6, page 47) as an example of profitable passenger service.

"Mail service," Mr. McDonald continued, is "a major part of the passenger problem," to which "the only obvious solution . . . is the disposition by the I. C. C. of the railroads' petition for increased mail pay rates, or a reduction in expenses incurred in handling mail, or both." Without expressing any opinion on the "propriety" of the railroads' pending request for an 80 per cent increase in mail pay, he did say that "It would appear that if the Post Office Department is to follow a policy of subsidizing the air lines for the transportation of mail, it should at least pay the railroads for the actual cost incurred. . . . The recent development of the highway post office . . . should alleviate somewhat the necessity for continued operation of highly unprofitable branch lines."

With respect to expenses, he pointed out that in 1948 passenger revenues "covered all expenses directly assignable to passenger service and contributed about $99 million toward payment of common expenses. Thus, the position of some shippers that all passenger service should be eliminated is hardly tenable."

Experimentation, Rules Changes, Needed

"There are," he continued, "many instances which justify experimentation, even to the extent of making substantial expenditures. . . . If, as a result of an overall study, the railroads were allowed to make large savings by discontinuing wholly impracticable service, no doubt they would be willing to invest a portion of those savings toward the improvement of other service.

"The operation of many trains is rendered totally impracticable by present employment rules which require a minimum number of employees per train. When such conditions exist it is often necessary to authorize discontinuance of the trains with resulting inconvenience to the public and loss of employment to all the members of the train crew. If . . . certain trains might be continued in operation by a reduction in personnel, and by otherwise changing their character so as to reduce expenses . . . some agreement might be reached with the railway labor organizations to provide for a relaxation of employment rules in specific cases."

Splawn Discusses Waybill Studies

On August 11, Dr. Splawn of the I. C. C. reported to the convention on the results of the commission's waybill studies, a discussion which he approached "as a commissioner who is expected to make some use of the results of the . . . work with waybills and who may be assumed to have some reasonable expectation of being aided in dealing with some questions."

A considerable part of his talk was devoted to an explanation of the processes involved in making the studies; to discussion of the accuracy of the one per cent sampling process used in them, and to consideration of the reasons for using short-line, or "rate-making" mileages rather than actual route mileages. With respect to the reasons underlying the studies, he commented in part as follows:

"The greatest value of the waybill data will lie in its thorough exploitation through research with a view to affording answers to numerous complex transportation problems of rates, revenues and related matters. Its unique advantage is the possibility it affords of analyzing any of the thousands of individual commodities included in the 262 freight commodity classes into which these commodities are grouped for statistical purposes.

"The time has come to provide for additional staff to carry on the second phase of the waybill work, research and analysis of the data being published.

"An important secondary purpose served by the waybill studies is that of developing an index of freight rates from which it will be possible to test the actual increases which have taken place in freight rates over a period of time by individual commodities territorially and interterritorially in terms of ton-mile revenue or revenue per ton or both. The commission has long wanted such an index and these waybill data offer for the first time a basis of developing such an index and keeping it up to date currently.

"Another important achievement would be the development of comparisons of the level of rates in the different territories. . . . Aside from these uses, there is a very considerable public interest in commodity movements from the standpoint of marketing in the United States."

Dr. Edwards' paper was a discussion of the relative costs of short-haul vs. long-haul rail traffic, with which he included some discussion of the general problem of railroad cost studies, which he described as "a measure of the relative amount of work performed by the carrier in handling the traffic."

He developed in considerable detail, and presented in tables and graphs which accompanied his talk, the relative importance of terminal and line-haul costs in freight movements of varying lengths. "Separate studies," he said, "indicate that the increases in expenses in recent years have rested most heavily on the terminal operations where direct labor is such an important factor.

"The significance of the terminal expenses and costs unrelated to distance may be indicated in another way. At a line-haul car-mile cost of 18.5 cents in the Eastern district, the costs unrelated to distance of $37.96 per carload are equivalent to 205 miles of haul. The comparable figure in the Southern region is 154 miles and in the Western district 223 miles. Thus, on a 400-mi. box-car haul (25 tons) in the Eastern district roughly one-third of the combined costs would be unrelated to the distance. On a 1,000-mi. haul, approximately 17 per cent of the expenses would be unrelated to the length of the haul." The tables and charts previously referred to included similar data for other types of movements and in other territories.

Craemer Cites Tax Problems

In addition to his remarks on the excise tax and the passenger traffic problem, as quoted above, Mr. Craemer devoted a considerable part of his president's address to a discussion of the general tax problem, and of other economic problems facing the railroads and other public utilities.

"The postwar cycle in which the public utility in-

dustry finds itself," he said in part, "has been characterized by three dominant factors: an unprecedented demand for increased public utility service, the tremendous impact of rising operating costs, and the ever-mounting tax burden. No one of these factors is within the control of either the industry or the regulatory commissions. Each of them must be recognized and effectively dealt with if . . . the public utility industry is to be maintained on a sound and stable basis.

"Wage increases are all well and good if production simultaneously increases. If we keep up the spiral of wage increases in the face of a declining volume of business and no greater production supports the payroll dollar, we will face even more serious rate problems. It might well spell disaster not only for the carriers but for workers and shippers as well.

"Congress has increased the tax burden on rail payrolls since the war. . . . This tax is scheduled to go even higher in years to come. . . . We of the regulatory bodies are compelled to recognize all taxes as an operating expense in fixing rates. They all thus become a part of the rate structure."

Mr. Craemer also referred to what he called the "capitalized taxes" paid by railroad supply companies and necessarily included in the prices paid by railroads for equipment. "The railroad company," he said, "when buying a Diesel locomotive, of necessity finds itself capitalizing a substantial part of the cost which is represented by taxes. . . . They are entitled to earn a return on that investment and they must also provide for depreciation of this equipment. Capital goods are thus well saturated with pyramided taxes. To that extent your government today lives on capitalized taxes.

"It is important that members of Congress are advised as to the effect of these ever-spiraling and expanding taxes on our economy. . . . There is a crying need that something be done in Washington about this problem."

Committee Reports

In addition to the foregoing addresses, the convention received a number of reports from committees of the association. The committee on legislation, in addition to its recommendation for repeal of the federal excise taxes on transportation, also recommended opposition to any attempt to repeal or substantially modify the Reed-Bulwinkle Act (section 5a of the Interstate Commerce Act); to any bill which would exclude persons who are not lawyers from practicing before the I. C. C. or other governmental agencies, and to proposals to create additional federal transportation agencies or to increase corporate federal income tax rates — the latter on the ground that it might lead to requests for further rate increases. The committee favored bills S. 255, to amend section 205 of the Interstate Commerce Act, relating to joint board procedure, and H. R. 2770, to amend section 77 of the Bankruptcy Act so as to "reinstate and preserve the jurisdiction of state commissions respecting the regulation of intrastate service and rates of railroads undergoing reorganization."

The committee on cooperation between state and federal commissions (Nat B. Knight, Jr., Louisiana, chairman) proposed certain clarifying rules of procedure in cases where a cooperating panel of state commissioners participates in hearings with the I. C. C. The committee on regulatory procedure (Everett C. McKeage, California, chairman) proposed an amendment to Section 1342 of the United States Judicial Code which it said would "preserve state jurisdiction from interference by federal courts" by barring all jurisdiction of federal district courts as applied to orders, decisions and actions of a state regulatory body affecting a public utility, where the order or action does not "cast an intolerable burden on interstate commerce," where it has been rendered after reasonable notice and hearing, and where remedy is available in the state courts.

The committee on service and facilities of transportation agencies (William T. Brooks, Arizona, chairman) presented a report which was sharply critical of the railroads, asserting that "there are staggering wastes in rail transportation which should be eliminated without further delay."

Mr. Brooks' committee cited as "the more important of such wastes the failure and refusal of the railroads to: (a) consolidate their properties; (b) pool freight cars and unify terminals; (c) eliminate passenger deficit, and (d) reduce loss and damage to freight." The report did not, however, include any suggestions as to how such objectives might be accomplished.

Other reports, largely in the nature of progress reports or summaries of developments since the association's previous meeting at Savannah, Ga., in November, 1948, included those of committees on safety of operation of transportation agencies (C. L. Doherty, South Dakota, chairman); valuation, (Samuel Bryan, Wisconsin, chairman); progress in regulation of transportation agencies (Jeff A. Robertson, Kansas, chairman); rates of transportation agencies (C. A. Merkle, South Dakota, chairman); corporate finance (Thomas A. Kennelly, Rhode Island, chairman), and business of secretarial offices (Edward T. Kaveny, Wisconsin, chairman). The report of the association's Washington office, dealing largely with its participation in the Ex Parte 168 freight rate case, was presented by Frederick G. Hamley, general solicitor of the association.

Miller of Ohio New President

H. M. Miller, chairman of the Public Utilities Commission of Ohio, was elected president of the association to succeed Mr. Craemer. Other officers elected or re-elected were: First vice-president, George H. Flagg, Public Utilities Commission of Oregon; second vice-president, J. C. Darby, South Carolina Public Service Commission; general solicitor, Frederick G. Hamley; secretary, Ben Smart, and assistant secretary, Stanley Allyson.

The U. S. part of the Berlin "air lift" carried 1,609,749 tons at a cost of $238,140,100—so reports "Aviation Week" magazine. This figures out to $147.93 per ton for the 350-mile haul, or a little more than 42 cents per ton-mile, which is approximately 32 times the average revenue per ton-mile being received by the American railroads for the transportation of freight.

EACH BIG TRUCK'S SUBSIDY

It has frequently been claimed by operators of big trucks, such as 3-axle single units and truck combinations, that they are fully paying their share of the cost of highway facilities provided for their use by government. It is here proposed to put this claim to a factual test.

Use of the highways is a joint use by many types and kinds of motor vehicles and for many different purposes. The cost of highway improvements and maintenance is incurred to meet the requirements of this joint use. Consequently, highway costs must be considered as joint costs. They must be separated and allocated fairly and equitably on the basis of a sound method.

A sound method of separating and allocating the joint costs of highway construction and maintenance is through the use of gross ton-miles, as a measure of use and of cost. The fact is that this method underlies in principle the whole system of taxation in the states for motor vehicle operators. In California, Illinois, Iowa, Maryland, Missouri, Utah and Washington, governmental agencies have used the gross ton-mile as the measure of relative use in their cost studies. All of the 48 states and the District of Columbia have had statutes since 1929 imposing a tax on motor fuel sold for the generation of power for the propulsion of motor vehicles on highways. Since 1921, every state has required registration and payment of a fee therewith for the operation of motor vehicles on highways. The basis for all registration fees fixed by present statutes for the property-carrying classes, such as trucks, trailers, tractors, and combinations, is one of weight. In fact, in a majority of the states, the weight basis is defined as gross weight.

In addition to the motor fuel tax and the registration fee, some states collect a motor carrier fee from regulated for-hire carriers as partial compensation for use of the public highways. Among such states, the basis of the tax is generally gross weight or mileage, or both.

It is clear from this examination of existing state laws that the legislative mind has been groping to find a way to impose an equitable ton-mile tax upon motor vehicle operators as payment for their use of improved highways. The uniform fuel tax is demonstrably unfair for passenger cars and other light vehicles, but has been retained for its ease and sureness of application. It has been supplemented by a registration fee, graduated—though not steeply enough—according to weight. Motor carrier fees have here and there been charged against certain groups as a further offset to the bias of fuel taxes. All of these laws must be complied with before the motor vehicle may be operated legally on the public highways. It is certainly evident that the combination of a motor fuel tax for mileage and a registration fee and a carrier tax based on gross weight is in principle a gross ton-mile tax.

Not only logic but also legislative practice, developed by legislation of long-standing and widespread usage, support the gross ton-mile method as sound in principle and as a reasonably fair and accurate measure of relative highway use, of highway "benefits," of "transportation service rendered by roads," and of payments for use. It must be recognized that this method does not give weight to such factors as space occupancy and interference with the operation of light vehicles on heavy grades, and to this extent favors the big truck.

More Data Now Available

Three nationwide studies of highway costs have been made in the past. One was by the former Federal Coordinator of Transportation, Public Aids to Transportation, Vol. IV, and was applied in detail to 1932. The second was by Messrs. Breed, Older and Downs, Highway Costs, for the Association of American Railroads, and also dealt in detail with the year 1932, but with some additional data for 1937. The third was by the staff of the Board of Investigation and Research—Transportation and applied specifically to the year 1940.

Year by year more data have become available and conditions have materially changed, so that a reconsideration is justified. Additional data of a more comprehensive character have been assembled from the statewide surveys carried on under the aegis of the Public Roads Administration. The information is of a very helpful and enlightening character.

Conditions have materially changed since the date of previous studies. Pertinent new facts, for example, were given in a speech to the Road Builders Conference by the commissioner of public roads, February 7, 1949. He pointed out that the volume of truck traffic is almost three times as great in 1949 as in 1931; that in 1931 trucks travelled about 11.4 billion miles on the main roads and in 1949 would approach 34 billion miles; that in 1931, about 8 trucks out of a thousand had axle loads of 18,000 lb., with practically none in excess of 20,000 lb., while in 1947 there were 76 trucks per thousand with 18,000 lb. or more per axle, 33 of 20,000 lb. or more, and 14 of 22,000 lb. or more, and that a highway that was carrying 5,000 vehicles per day, with 780 trucks in 1941, in 1947 was carrying 9,500 vehicles, of which 1,980 were trucks.

Data published by the Public Roads Administration show that the loads carried by trucks and their combinations on 350,000 miles of main rural roads in the United States amounted to 58.7 billion ton-miles in 1941[1] and 73.6 billion in 1947[2], an increase in 1947 of 25 per cent over 1941. Of the 58.7 billion ton-miles in

[1]Public Roads, vol. 25, No. 3, p. 47, March, 1948.
[2]Public Roads, vol. 25, No. 7, p. 150, March, 1949.

$1,342 A YEAR

A factual test applied to the claim of truckers that they pay their fair share of highway costs

By DR. C. S. DUNCAN
Economist,

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1941, single-unit trucks carried 28.5 billion, or 48.5 per cent, and truck combinations carried 30.2 billion, or 51.5 per cent. In 1947 the single unit trucks carried 22.6 billion ton-miles, or 30.7 per cent, and the combinations carried 51.0 billion, or 69.3 per cent. Thus, the ton-mileage carried by the single unit trucks in 1947 was only 80 per cent of that carried by them in 1941; whereas, the combinations carried in 1947 a ton-mileage total equal to 169 per cent of the total carried by them in 1941. This demonstrates a remarkable shift from the smaller vehicles to the heavier combinations during the short span of seven years.

As more or less opinion evidence, but clearly indicating the trend of public feeling in the matter, there is given the following excerpt from an open telegram of February 18, 1949, by the American Automobile Association:

"Motor vehicle owners are paying more and more of the costs of highway construction and maintenance. There is growing evidence that passenger cars and the millions of owners of smaller and lighter trucks are paying more than their fair share of the total allocated to all motor vehicles. In this connection we respectively call your attention to the report recently made to the California legislature by G. T. McCoy, chief engineer of the Division of Highways, that the heavy vehicles in that state are responsible for 55 per cent of the total cost of new highway construction—a proportion far in excess of tax payments currently assigned against this segment of trucks. This raises the question as to how long the lighter vehicles should continue to subsidize heavy operations." "Heavy vehicles" were those above 8.000 lb. axle weight.

More and Heavier Trucks

The report of the Illinois Highway and Traffic Problems Commission (1949) recommends "substantial increases in truck, bus, and trailer licenses" and says: "In arriving at the license fee rates it recommends, the commission has adopted the premise that the increases should be much larger in the case of heavy vehicles than in the case of light vehicles. Highway facilities are more costly because of the need to accommodate the heavy vehicles; and furthermore, heavy vehicles have been paying smaller user taxes per ton-mile in Illinois than have the light vehicles." According to their figures the automobile is paying three times as much per ton-mile as the largest type of truck.

Since World War II, there has been a more rapid increase in trucks, and in trucks and combinations of large size. Furthermore, the loadings have been heavier. The easings of maximum load laws granted during the war period have, in many cases, been made permanent. Hence, there are more trucks and bigger trucks than ever before. There has been no increase in charges against them to keep in step with increase in size and weight and use.

In Indiana, for example, the State Highway Commission reported in 1948 that "The increase in the number of heavy trucks on the highways, particularly of the combination type of truck-tractor drawing a semi-trailer —recognized as the heaviest vehicle on the road today— has been little short of phenomenal; the number registered in the first year (1926) of their existence was 111; by 1947 the number had shot up to 13,960. Between the years of 1940 and 1947 there was an increase of 100 per cent; and from 1945 to 1947 a 45 per cent increase. The number of semi-trailers has increased in the same proportion. . . . They require more expensive highway construction than do lighter trucks and passenger cars," but highway user charges have not increased.

No previous study has found that motor vehicles as a group have paid the total cost of highway and street improvement provided for their use. It is still true. In the period 1921-1947, as shown by government reports, total expenditures for construction and maintenance of roads and streets amounted to $53.5 billion, and, in the same period, total highway user payments have amounted to $23.9 billion, or 44.67 per cent. The deficit is $29.6 billion, or 55.33 per cent. This amount of deficit has never entered into the cost of motor vehicle operation, and certainly no part has been a factor in the highway rate structure.

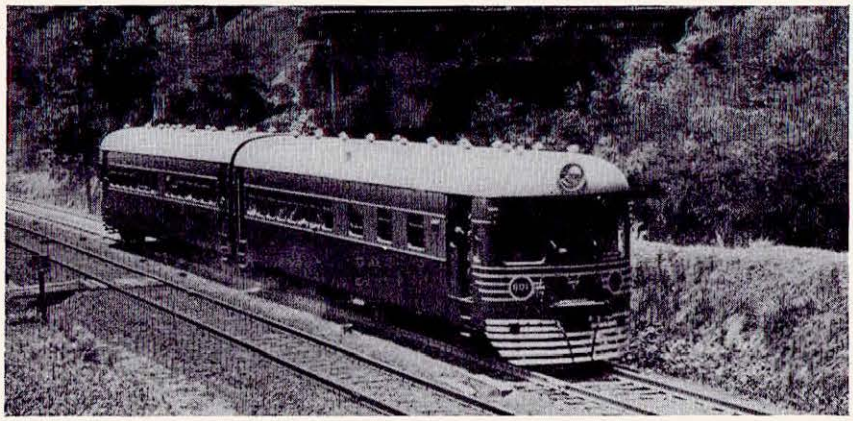
Application of the Ton-Mile Method

For 1947, there have fortunately been made available data and tables, not heretofore to be had, which supply fairly representative information to meet the requirements of the gross ton-mile method.[3]

In order to apply the method of gross ton-miles as a measure of road and street use and hence the measure of relative cost, to the group of trucks, designated here as big trucks, including 3-axle single units and combinations, it is necessary to ascertain—

a. Their average weight, loaded and unladen;
b. The number of vehicle miles operated;
c. From a. and b. the total gross ton-miles for the group;
d. The total expenditures for construction and mainte-

[3]They are to be found in Public Roads, official publication of the Public Roads Administration, volume 25, No. 7, March, 1949. This is the source of information upon which the following analysis is largely dependent.



Twenty modern, multi-unit Diesel trains will soon be operating on branch lines in New South Wales, Australia, as part of a drive by that state to improve its rail service. With the exception of some of the aluminum and the American-built 165-hp. motors, the trains are to be all-Australian-made. Ten will be two-unit and ten three-unit trains

nance and the total payment by all motor vehicles for highway use, for the year studied;

e. The portion of expenditures or payments to be paid by big trucks as a group and average per unit, and
f. Comparison of amount that was paid by the group and per unit with what should have been paid.

From this final computation, it can be shown whether or not the big trucks are paying their fair proportion of expenditures or payments, are overpaying, or are subsidized.

Average Weight

Table 6 in Public Roads for March, 1949, p. 149, shows the following average weight by classes of loaded and empty trucks for 1947.

	Loaded, lb.	Empty, lb.
Single-unit trucks, panel and pickup	5,109	3,965
" " " other 2-axle, 4-tire	7,816	5,271
" " " 2-axle, 6-tire	12,871	7,036
" " " 3-axle	26,711	13,777
Combinations	37,498	18,304

Interest in this table centers in the last two groups, the 3-axle single units and the combinations, which are called the big trucks in this study.

The mileage traveled by the loaded and empty big trucks represented 31.26 per cent of the total vehicle-miles of travel by all trucks and combinations on the 350,000 miles of roads—divided between the 3-axle single-unit trucks and the combinations, 3.72 and 27.54 per cent, respectively.

The total amount of estimated travel, both rural and urban, by all trucks and combinations in the United States in 1947 is 66,089,000,000 vehicle-miles. Applying the above percentages, 3.72 and 27.54, to the total of 66,089,000,000, we find that single-unit trucks with 3 axles traveled 2,458,000,000 vehicle-miles and combinations traveled 18,201,000,000 vehicle-miles, a total of 20,659,000,000 vehicle-miles in 1947.

Gross Ton-Miles

It was found that 44.5 per cent of the vehicle-miles by the 3-axle single-unit trucks on the 350,000 miles of main rural roads were traveled by empty trucks having an average weight of 13,777 lb.; 32.9 per cent of the vehicle-miles traveled by the combinations were by empty vehicles having an average weight of 18,304 lb. The gross ton-mileages of the empty and loaded 3-axle trucks and combinations as well as of the other types of trucks are developed as shown in Table 1. Combinations and 3-axle trucks accounted for 309.5 billion gross ton-miles, whereas all other trucks accounted for 172.5 billion gross ton-miles.

All other motor vehicle classifications, automobiles, commercial buses, school and non-revenue buses, traveled an estimated total of 304.5 billion vehicle-miles. Multiplying the vehicle mileages of these three passenger classifications by their respective average gross road weights, we determine the total gross ton-miles of all passenger vehicles to be 543 billion (See Table 2). Thus, the total gross ton-mileage of all vehicles in 1947 is the sum of the figures for passenger vehicles, small trucks and the big trucks, namely, 1,025 billions. The 309.5 billion gross ton-miles computed for the combinations and 3-axle single-unit trucks, the big trucks represent 30.2 per cent of the total.

Total Expenditures and Payments, 1947

Total public expenditures on highways and streets were estimated by the Public Roads Administration to amount to $2,328,000,000 in 1947.[4] Total payments including fuel taxes, fees and other road imposts by all kinds of motor vehicles in 1947, amounted to $1,838,741,000[5].

Portion to Be Paid by Big Trucks

On the basis of total expenditures in 1947, 30.2 per cent of $2,328,000,000, or $703,056,000, represents the share of cost for combinations and 3-axle single unit trucks—the big trucks. On the basis of payments actually made in 1947, the big trucks should have paid 30.2 per cent of total payments, $1,838,741,000, made by all motor vehicles, or $555,300,000.

The exact number of combinations operating on all public thoroughfares is not known but a reasonably accurate estimate can be made. Tractor semi-trailer combinations registered in 12 states (Alabama, Arkansas, California, Colorado, Connecticut, Indiana, Iowa, Maine,

[4]Hearings, H.R. 5888, Federal-aid Highway Act of 1948, 80th Cong., 2nd sess., p. 183.
[5]Public Roads Administration, Highway Revenues, SF-1,1948.

Maryland, Montana, Pennsylvania, Wyoming) numbered 83,924 in 1947 and thus accounted for 4.59 per cent of all truck and tractor registrations in these states. Considering the geographical location and industrial character of these twelve states, they may be accepted as being representative of all states. Hence, the total tractor semi-trailer combinations numbered 4.59 per cent of the 6,512,628 trucks and tractor-trucks registered in the United States in 1947. On the main rural roads, the truck and trailer combination and the 3-axle single unit account for one-fourth as many vehicle-miles as the tractor semi-trailers. On the ground that vehicle-mileages operated by each of the three types of vehicles designated as big trucks are proportional to their respective numbers, the total number of big trucks is determined by multiplying 6,512,628 by 1¼ times 4.59 per cent, or 5.74 per cent. This percentage of 6,512,628 is 373,825, the number of single-unit trucks and combinations for which $703,056,000 were expended for public ways in 1947. Such *expenditures* amounted to an average for each of these big trucks of $1,880.71.

Since the big trucks as a group, numbering 373,825, should have paid as their share 30.2 per cent of total payments *actually made* or $555,300,000, each of these big trucks should have made an average payment of $1,485.45.

Payments Made by Big Trucks, 1947

Studies made in California, Illinois, Indiana, Michigan, Pennsylvania, and Texas have developed ton-mile payments by operators of big trucks registered in those states varying from less than 0.05 cents to 0.075 cents, although Illinois reported 0.09 cents for one gross weight group in that state. An average of the payments in these states is approximately 0.065 cents per gross ton-mile. Since 3-axle trucks and combinations accounted for 309,536,634,000 ton-miles in the United States, by applying 0.065 cents per ton-mile, we find their total payment to be $201,198,812. This figure, divided by the total number of such vehicles, 373,825, shows an average payment per vehicle of $538.22.

On the basis of expenditures, the big trucks should have paid $703,056,000, or an average of $1,880.71 for each big truck. Therefore, on a gross ton-mile basis, as a measure of relative use and payment, the average 3-axle truck or combination, the big truck, paid only *28.62 per cent of its fair share of expenditures* made on all public streets and highways in 1947.

On the basis of payments made, the big trucks should have paid $555,300,000 or an average of $1,485.45 for each big truck. The average big truck paid $538.22, or only *36.2 per cent of its share of payments.*

Subsidy to the Big Trucks

Since the big trucks as a group paid only $201,198,812 out of a total of $703,056,000 of expenditures which they should have paid, they received subsidy as a group in the amount of $501,857,188. On the basis of payments, they paid only $201,198,812 out of a total of $555,300,000 which they should have paid. By this method they received a subsidy of $354,100,000.

On the basis of expenditures, the average big truck should have paid $1,880.71. It paid $538.22. It failed, therefore, to pay its fair share in the amount of $1,342.49, and to this extent it received subsidy. On the basis of user payments, the average big truck should have paid $1,485.45. It paid $538.22. It failed, therefore, to pay its fair share of actual payments in the amount of $947.23, and to this extent was subsidized by passenger cars and light trucks.

This analysis takes no account of overloaded trucks and their destructive effect upon highway pavements. "Billions of dollars worth of the nation's finest highways are being pounded to pieces by overweight and overloaded commercial vehicles," says the American Automobile Association. If the destructive effect were taken into consideration, the subsidy would be greater.

Here also is a solid factual foundation for the claim by the American Automobile Association that "the passenger cars and millions of owners of smaller and lighter trucks are paying more than their share of the total [construction and maintenance cost] allocated to all motor vehicles." The association adds: "This raises the question as to how long the lighter vehicles should continue to subsidize heavy operations. One thing is clear and that is that the lighter vehicles cannot continue to subsidize destructive operations."

TABLE 1—Vehicle-miles Traveled, Loaded and Empty, by Trucks and Combinations, Their Average Weights, and Gross Ton-Miles, on All Streets and Highways in 1947

Vehicle Type	Percentage of vehicle-miles on main rural roads	Vehicle-miles, on all public ways (percents x total), in millions	Percentage of vehicle-miles on main rural roads		Vehicle-miles on all public ways, in millions	
			loaded	empty	loaded	empty
Panel & pick-up	28.44	18,796	39.2	60.8	7,368	11,428
Other 2-axle, 4-tired	4.12	2,723	50.9	49.1	1,386	1,337
Other 2-axle, 6-tired	36.18	23,911	54.4	45.6	13,008	10,903
Single unit, 3-axle	3.72	2,458	55.5	44.5	1,364	1,094
Combinations	27.54	18,201	67.1	32.9	12,213	5,988
Totals	100.00	66,089	53.5	46.5	35,339	30,750

Vehicle type	Average gross weight of vehicles				Gross ton-miles on all public ways, in thousands	
	Loaded lb.	Loaded tons	Empty lb.	Empty tons	Loaded vehicles	Empty vehicles
Panel & pick-up	5,109	2.5545	3,965	1.9825	18,821,556	22,656,010
Other 2-axle, 4-tired	7,816	3.908	5,271	2.6355	5,416,488	3,523,663
Other 2-axle, 6-tired	12,871	6.4355	7,036	3.518	83,712,984	38,356,754
Single unit, 3-axle	26,711	13.3555	13,777	6.8885	18,216,902	7,536,019
Combinations	37,498	18.749	18,304	9.152	228,981,537	54,802,176
Totals					355,149,467	126,874,622

TABLE 2—Vehicle-miles Traveled, Average Gross Road Weights, and Gross Ton-miles of Passenger-carrying Vehicles on All Streets and Highways in 1947

Vehicle type	Vehicle miles (millions)	Average Gross Wgt. (lb.)	(tons)	Ton-miles (thousands)
Automobiles	300,282	3,390 (a)	1.695	508,977,990
Commercial buses	3,560	17,400 (a)	8.7	30,972,000
School and non-revenue buses	691	9,000 (b)	4.5	3,109,500
Totals	304,533			543,059,490

(a) Public Aids to Domestic Transportation, p. 308.
(b) Public Aids to Transportation, Vol. IV, p. 134.

GENERAL NEWS

Inland Chief Attacks Steel Board Creation

Presages end of collective bargaining, charges Randall

Clarence B. Randall, president of the Inland Steel Company, Chicago, appeared last week before the three-man fact-finding board hearing the steel industry-unions dispute at New York, and charged that President Truman, in forming the board, has "destroyed" collective bargaining. The president by-passed the provisions of the Taft-Hartley law and appointed the board in a truce proposal to avert a nationwide strike by steel workers, who are demanding a fourth-round wage increase.

Mr. Randall's complete statement follows:

"It is no exaggeration to say that the welfare of every citizen of the United States is at stake in the hearings before this board. And by this I mean not only the fact that you gentlemen are authorized to make recommendations that might affect the prosperity of the whole nation, but the fact that you are here at all.

"Industrial Revolution"

"When the President announced the formation of this board he was in fact announcing an industrial revolution in America. By doing so he has declared himself as favoring a new social order, and one so different from that under which our magnificent production record has been achieved that unless the process is stopped, and stopped at once, there will be no possibility of turning back. Through this means, whether he knew it or not, he has proclaimed that wages shall be fixed by the government. This step is always the first one taken by those who set out to establish a socialist or corporative state. The fixing of profits comes next, and then when incentive is killed and production falls, the final step of nationalization follows. Europe came close to starvation because of this tragic sequence, and was saved only by the dynamic quality of a free America. Yet here is the same pattern.

"Review the sequence of events. Bargaining was undertaken by this union that turned out to be bargaining in name only. Take Inland Steel Company, for example. It is now quite clear that at no time did the union actually intend to come to an agreement with us. We were but an insignificant part in the working out of the global strategy by which the establishment of this board was to be forced upon the government. The wage demand which was presented to you gentlemen was never brought to our bargaining table. We hear of it first here. It was pensions the union asked of us.

"We made an offer on pensions. We were confident that our employees liked that offer, but the global strategy of the union required that it be rejected and that no single company be permitted to make an agreement. So we find ourselves pleading our cause before strangers, men of standing but men who are strangers to our company and to our employees. You have never seen our plant, and never talked with our men, and it isn't human to expect that in the few brief moments that we shall be before you you can understand our problems. Collective bargaining has been destroyed. It has been repealed by the President. And if this union strategy works this time, collective bargaining will never come back. The precedent here attempted, reflecting the similar attempt made in 1946, would commit us to boards and government wage-fixing forever.

"And no thoughtful person should be deceived by the naive suggestion that your findings are to be recommendations only. The moment your announcement is made, every power of the government will be brought to bear to compel both sides to accept your conclusions. If management in a particular steel company feels it must take exception to your findings, an attempt will be made to forget the word 'recommendations' and to whip up public opinion to force company acceptance. This, I say, my company will resist.

Higher Costs Now Mean "Disaster"

"I would hold this view with the same deep conviction even if I knew that you would deny each demand of the union, as statesmanship requires you to d.. No increase in cost whatever should take place at this time. To increase cost in a falling market is to invite disaster. Rising costs inevitably bring lower volume and unemployment. War pressures are ended, and we are in a rapidly changing market. The battle now is to maintain production, and industry needs lower costs, not higher.

"I cannot think but that you gentlemen see this as clearly as I do. But the system that brings you here is wrong, tragically wrong, in my opinion. I repeat, that this is a revolution. It is a different America if three men are permitted to substitute their judgment for that of hundreds and thousands of managers of individual businesses all over the country. President Truman recently criticized the bigness of business. But the bigness which he has here created is a bigness so incalculable that it can destroy America. It is a bigness that no three men, gifted though you may be, ought to be asked to assume. It is a bigness that denies every American tradition, and that must be resisted if America is to remain free.

"And in my opinion it will be resisted. This is America at the crossroads, and the steel industry cannot stand idly by. This is labor monopoly given its blessing by government and by the same government that cries monopoly at management.

"Distortion of Our Economy"

"Mr. Murray (presiden. of the C.I.O.) speaks with complete authority. His is the single voice for all unions in the steel business. He holds the power to suspend steel production in every steel plant in the country, and suspend it too in big plants that use the production of that industry. Through political alliance with the government he possesses the power to induce the President of the United States to take extra-legal action at his request. Sarcastically in these hearings he scoffed at the fact that the various companies involved had difficulty in acting as a unit. Does he think that we have one single man who can dictate policy to hundreds of separate companies? Has he forgotten that steel plants are privately owned, and that the individual owners are entitled to run their businesses as they think best, and not as a steel czar might dictate? Has he forgotten competition? If so, the Attorney General might well instruct him on the point. He has operated within a labor monopoly for so long that by mental habit he associates the same pattern of monopoly with other institutions. He conceives it natural for the steel industry to orm an opposing monopoly as complete and as gigantic as his.

"This we will not do. See where it has brought us in these present hearings. The labor monopoly took half of the time of this board. Some 63 companies are now before this board. Many of them have asked to be heard on the management side. Yet there has been allotted to them eight days—eight days to be divided between them—the same time given the labor monopoly. Many fine institutions must content themselves with a brief 15 minutes or half an hour in which to discuss a question on which the whole future of their enterprises may hinge. That is complete madness. No orderly di ussion nor fair results can flow from

such a process. I repeat—this is the repeal of collective bargaining—this is government wage-fixing, the inevitable consequence of labor monopoly.

"In my judgment, the steel industry cannot by its presence here be deemed to consent that this process go on. It must protest to you and to the President, and to the American people, that this is a distortion of our economy. And I submit to you gentlemen that it lies fully within your province to protest likewise. You will hear our doubts as to the propriety of this political proceeding, and you are not the men I think you are if you have not already yourselves entertained similar doubts.

"I ask you to be courageous. I ask you to be statesmen. I ask that in your recommendations you not only record our doubts, but that you express your own honest convictions to the effect that the very establishment of this steel fact-finding board is in itself a bad thing for the United States.

"It is bad in principle—therefore it would be bad at any time, but today it is dangerous. Our country is now in a recession. Production is in the falling trend in industry after industry. Unemployment has reached its highest point in seven years. You cannot safely pile new uncertainties on an already uncertain situation. You cannot safely discourage investment in private enterprise which, after all, is the source of all employment, all wages, all profits, all production—the livelihood of the American people.

"You will do all these things if you permit yourselves to be made an instrument through which Mr. Murray's union can impose increased cost on American industry and the American people. This is surely the time for management for labor, and for government to exercise genuine statesmanship for the common good. It is obviously no time, in the face of the present situation throughout the world, for any interest to pursue a course which could precipitate a grave economic crisis in the United States."

I.C.C. Modifies M.P. Reorganization Plan

Capitalization increased; common stock of "no value"

To some extent liberalizing its earlier proposals, the Interstate Commerce Commission has issued its fourth supplemental report and order in the Missouri Pacific reorganization proceedings (Finance Docket No. 9918), thus approving a new plan to terminate the long period of court operation of this railroad, which was placed in the hands of trustees April 1, 1933. The latest plan differs in some respects from that proposed by Examiner R. H. Jewell, which was outlined in *Railway Age* of November 6, 1948, page 54, but it retains many of its features, including provisions for a limited participation in the new company of holders of old Missouri Pacific preferred stock and a finding that the equity of holders of the old company's common stock is "without value."

The principal holder of old Missouri Pacific common stock is the Allegheny Corporation, with 499,200 of the 828,395 shares outstanding. Allegheny has been active in the complicated course of the reorganization proceedings through the commission and various courts.

Two Plans Rejected

The commission's further modified plan is subject to petitions for modification and replies thereto, for which 70 days from August 2 are allowed. It then must be accepted by the court administering the road's affairs under the Bankruptcy Act and by various creditor groups to become finally effective. The effective date fixed in the plan is January 1, 1948, which is termed by the commission "not too remote from the date upon which a plan is likely to be considered by the court." The latest plan is, for convenience, referred to as the 1948 plan, to distinguish it from earlier proposals by the commission, the 1940 plan and its revised successor, the 1944 plan. The 1948 plan, developed from Examiner Jewell's proposals, is the result of further hearings held after the courts in 1947 remanded the 1944 plan to the commission for further consideration in the light of changed conditions that had developed, particularly as a result of the war, since the earlier plans were issued. The 1944 plan was outlined in *Railway Age* of July 22, 1944, page 157: it was the result of rejection of the 1940 plan by various groups of creditors and the federal courts.

The 1948 plan provides for one new company to succeed various companies in the old Missouri Pacific system, including the present Missouri Pacific, New Orleans, Texas & Mexico, and International-Great Northern and various subsidiaries. The claims of creditors of the several old companies are all disposed of in the plan for a single new company, which is subject to alteration to permit a separate reorganization of the I.-G.N. if it should be held that the corporate existence of that road must be maintained to meet legal obligations concerning its offices at Palestine, Tex. The commission held, however, that a single company will produce "economies of operation, will be in the public interest, and will be to the advantage of all the debtors."

Capital $612 Million

According to the 1948 plan the new company's capitalization will be $611,931,952 (without regard to Plaza-Olive Building first mortgage bonds, which are not affected by the recapitalization). This total compares with $608,942,416 proposed by Examiner Jewell, $559,889,000 provided in the 1944 plan, and $562,398,400 in the 1940 plan. As indicated in the table, fixed-interest obligations would constitute 37.36 per cent of the total capitalization, all debt, 65.09 per cent, and stock 34.91 per cent. "While this ratio of debt to total capitalization is somewhat higher than the 63 per cent provided for in our approved plan of 1944," the commission said, "the recent larger earnings and more favorable future prospects of the debtors at the present time as compared with those existing at the time of approval of the plan in 1944 justify the moderate increase."

The new capital structure, which in the opinion of the commission will "insure coverage of fixed interest in years of least favorable earnings and ample coverage of all interest charges together with a fair return to stockholders during periods of good earnings," is as follows:

	Principal amount	Annual charges
Fixed-interest debt		
Equipment obligations	$21,174,664	$422,493
First mort. 4% bonds.....		
Series A—$40,615,900		
Series B—83,409,899.50		
Series C—83,409,899.50....	207,4355,699	8,297,428
Contingent-interest debt		
Gen. mort. 4½%inc. bds.		
Series A—$143,594,632		
Series B— 26,092,850....	169,687,482	7,635,936
Gen. mort. sink. fund		848,437
Total all debt	398,297,845	17,723,883
Stock		
Preferred, 5%, $100 par....	100,107,904	5,005,395
No par com., stated at $100 Class A ($5 dividend ahead of Class B dividend)..$83,444,732		
Class B 30,081,471	113,526,203	
Total stock	213,634,107	5,005,395 (bef. com. dividends)
Total capitalization	611,931,952	22,729,278

The new plan provides for the distribution among senior creditors of $41,096,210 in cash in partial satisfaction of their claims. No options of cash or new securities will be offered as in the 1944 plan. Of the total cash distributed, $35,453,866 will be allotted to Missouri Pacific first and refunding mortgage bondholders. Provision is made for the distribution of additional cash prior to consummation of the plan, if ordered by the court. As of December 31, 1948, the report indicated, the system roads had cash and equivalent amounting to $75,640,220.

Voting Trust Scuttled

The 1944 plan had provided for purchase warrants for Class B common stock to be issued to certain junior creditors and established a five-year voting trust for the new stock, but no such provisions are included in the 1948 plan. Changes are made, also, in the provisions for the designation of reorganization managers and the first board of directors of the new company. Under the 1944 plan Allegheny Corporation would have participated in the reorganization as a holder of M.P. convertible bonds, and the Reconstruction Finance Corporation was a substantial creditor, and consideration was given to these facts in providing for the selection of reorganization managers. As Allegheny has since disposed of its bonds and the R.F.C. loan

has been paid, the interests of the principal classes of creditors have been modified, and the designation of reorganization managers reflects the changed conditions. The composition of the first board of directors likewise has been adjusted.

The new plan provides that, with certain exceptions, all creditors of the system will receive cash or new securities of a total principal amount equal to the principal of their claims plus unpaid interest to the effective date of the plan. The exceptions are: (1) holders of L.-G.N. adjustment bonds, who will receive new securities equal to 110 per cent of the principal amount claimed, (2) general unsecured and unpreferred creditors of that subsidiary, who will not participate in the reorganization, and (3) holders of

(Continued on page 85)

Protection from Cold Ordered in East

Required for perishables by I.C.C., which sets charges

Railroads in Official territory "have the duty to provide just and reasonable protective service against cold on perishable traffic," the Interstate Commerce Commission has decided upon further hearing in the No. 20769 proceedings, and establishment of that service is required on or before March 1, 1950, under an accompanying order. "Just and reasonable charges" for such services were prescribed by the commission on its own initiative, no charges having been proposed by the carriers, to be effective "without prejudice to petition for revision thereof after a season's trial."

The protective service required is "against frost, freezing or artificial overheating," and is to apply generally east of so-called heater territory, that is, broadly, east of the Illinois-Indiana state line. After investigation, the commission had issued an order on April 2, 1945, finding the establishment of such service in that eastern territory and between that territory and heater territory, to be the railroads' duty, but leaving the determination of the charges to the carriers (see *Railway Age* of April 21, 1945, page 731). The railroads having failed to institute the service, except as to white potatoes, the proceeding was reopened and, on further hearing, the order was set aside in 1947 to permit the commission to make a new investigation of the need for the service. The present report and order are its result.

As summarized in the report, the railroads' contentions were that the commission is without jurisdiction as to the subject, that additional facilities would be required to provide the service, that the comparatively few days when the service would be needed would not justify procuring those facilities, that establishment of the service would subject the carriers to liability as "insurers," and that shippers should assume the responsibility of requesting heaters and specifying the conditions f their use as provided by Rule 514 of the perishable protective tariff.

Many Freezing Days

Taking up these arguments in turn, the commission pointed out that it has "asserted and maintained" jurisdiction over protective service against heat for many years, and it held that there is no "jurisdictional difference" between enforcement of protection against heat and against cold. It held further that it is the duty of railroad common carriers to furnish protective service against cold, and that establishment of carriers' protective service in Eastern territory "will not impose new and unusual liability" upon them. There may be some loss and damage claim payments, it said, "but the door is open for the inclusion in the charges for carriers' protective service of such an amount as may be necessary to compensate the carriers for added cost."

As to the need for additional facilities, the report said, "Carriers may not forego their duty to furnish protective service against cold merely because furnishing that service would entail acquisition of suitable facilities." Pointing out that the roads subject to the order have used car heaters "for many years," and that they had "more than 89,000 heaters," the commission said that they may use "any facility or instrumentality" that will afford the required protection, and that "it appears that it should not be long" before the railroads can provide "inside temperature control" devices and otherwise improve their protective equipment. "There is no present warrant," it held, for requiring the railroads to provide special equipment to control the temperature of cars.

Traffic moving in Eastern territory is "likely to encounter freezing temperature on 86.1 per cent of the days in December, January and February and . . . the more severe temperatures of 20 degrees and lower on 44.1 per cent of the days in those months," the commission found. "No further proof is needed to show that in order to move freely in this territory in these months perishable freight must be afforded protection from cold." Rule 514 service is not sufficient to meet the requirement that the railroads must provide what is understood by "carriers' protective service," the commission held, though there is nothing in its findings and order, it pointed out, making that service compulsory or preventing shippers and carriers from agreeing upon "any" less comprehensive protective service, so long as "carriers' protective service" is maintained for shippers desiring it. There is a substantial demand for such service, the report stated, and shippers seeking it have indicated willingness to pay reasonable charges therefor.

The railroads having made no estimates of the cost of providing the protection against cold which the commission is requiring of them, that body examined charges prevailing in heater territory and prescribed in its report charges to be applied in Eastern territory on the same general principles. In heater territory, the report pointed out, there are six rate base groups, and charges for carriers' protective service range upward in stages from $11.25 a car for movements within a single group to $36.37 a car for movements between the most widely separated points. Taking into consideration the shorter distances in Eastern territory, also divided by the railroads into six rate base groups, the commission held that reasonable charges there will be $11.25 for the initial group, $4.52 each in addition for the second and third groups, $2.72 each in addition for the fourth and fifth groups and $2.71 for the sixth group, making the charge $28.44 a car for movement between the most distant points in the area east of so-called heater territory.

For movements to heater territory from points east thereof, subject to the present order, the charge prescribed is $11.25 for the initial group, plus the appropriate charge for each additional group in Eastern territory, as prescribed, plus $3.9675 for each additional group traversed in heater territory. For eastward movements from heater territory, the existing charge to the eastern boundary of that territory applies, plus $2.72 for each rate group traversed in Eastern territory. Protective services already being furnished without charge are not affected.

July Revenues 17.7 Per Cent Below Those of July, 1948

From preliminary reports of 82 Class I railroads representing 80.5 per cent of total operating revenues, the Association of American Railroads has estimated that the July gross amounted to $558,038,252, a decrease of 17.7 per cent below the $677,965,908 for the same 1948 month. Estimated July freight revenues were $447,347,378, as compared with July, 1948's $550,560,580, a decrease of 18.7 per cent. Estimated passenger revenues totaled $66,148,518, as compared with $77,810,248, a decrease of 1.50 per cent. The estimated for all other revenues was $44,542,356, as compared with $49,595,080, a decrease of 10.2 per cent.

Firemen's Work Safer, Easier With Diesels, Railroads Say

The Diesel-electric locomotive has made the work of railroad firemen much safer, and Diesels, plus improvements to steam locomotives, have made their work much easier, railroad witnesses this week told the Presidential "fact-finding" board which has been holding hearings at New York since June 27 on the demands of the Brotherhood of Locomotive Firemen

& Enginemen for employment of extra firemen on "fireless" Diesel locomotives, and for other changes in working rules and pay schedules.

As the hearings, the weekly progress of which has been reported in each issue of *Railway Age* since July 2, entered their eighth week, C. L. LaFountaine, of St. Paul, Minn., general safety supervisor of the Great Northern, told the board that travel on American railroads is three times safer than it was a quarter of a century ago.

Asserting that the union's demands were "absurd and unsound," Mr. LaFountaine said "the diesel-electric locomotives have in fact contributed substantially to the outstanding safety record of the nation's railroads." Safety statistics for 1946-1948 inclusive, he said, showed that firemen on Diesel-electrics were "almost three times safer than firemen working on steam locomotives," while "fewer persons suffered fatal injuries in railroad accidents in 1948 than in any of the past 50 years."

The Great Northern, he added, was one of the earliest and largest users of Diesel-electric locomotives and "had not had a single fatality to an engineman or fireman in either road Diesel freight or passenger service. Injuries," he added, "were few and far between."

Higher than standard rates of pay granted by western railroads over 50 years ago to firemen working in mountain and desert territories are now out of date and should be abolished, Daniel P. Loomis, of Chicago, chairman of the Association of Western Railways, told the board in his second appearance as a witness before it.

"These higher than standard rates of pay, which add about $802,000 annually to operating costs, had their origin," Mr. Loomis said, "in the pioneering days of railroading and were developed because of the hardships then instant to early desert and mountain operations. They were necessitated on account of the need to pay higher rates—in the nature of concessions or bonuses—to attract necessary employes."

Men were then firing wood or coal-burning locomotives by hand, he said, "requiring constant physical effort of the fireman so as to maintain a sufficient supply of steam. It is now a matter of common knowledge," he declared, "that the disadvantages, discomforts and hardships which caused these higher rates to be established have now disappeared." The present use of oil-and-stoker-fired locomotives, together with the expanding use of Diesel-electrics, he pointed out, "has reduced the fireman's work to a minimum."

Diesel-electric locomotives have fattened the pay envelopes of the men who run them, J. Elmer Monroe, of Washington, D. C., assistant vice-president of the Association of American Railroads, told the board in describing the long-established dual system of pay with its incentive feature to encourage engine and train crews to get their trains over the road.

Mr. Monroe said that employees in road engine service have "voluntarily restricted their earnings opportunities by placing a limitation on the mileage a man can run in a calendar month." He told the board that during the first quarter of 1949 total hourly earnings of passenger firemen averaged $3.143 per hour; through freight firemen, $2.163, and firemen in local and way freight service, $1.782 per hour. Passenger firemen, he said, are averaging $106.95 per week; through freight firemen, $76.16, and firemen in local and way freight service, $103.22 per week. Present weekly earnings, he said, "are 90 per cent greater than in 1940." At present pay rates Mr. Monroe estimated that average earnings of passenger firemen for 1949 will be about $5,577; firemen in through freight service, $3,971, and firemen in local and way freight service, $5,382.

Mr. Monroe pointed out that payroll costs for firemen on Diesel-electric locomotives will be doubled if the railroads are required to employ an extra fireman.

The National Safety Council's "S" pennant for safety was raised over the St. Louis-San Francisco's Lindenwood yards in St. Louis, Mo., on August 8, at a ceremony attended by many of the employees who helped the railroad win the honor (see *Railway Age* of July 30, page 59). Holding the pennant just before it was raised by a color guard from the 138th Infantry were: (left to right) H. M. Cloud, superintendent of terminals, St. Louis; Robert J. Stone, assistant general manager, Springfield, Mo.; S. J. Frazier, general manager, Springfield; Reyburn Hoffman, secretary manager of the Greater St. Louis Safety Council, who presented the pennant, and R. P. Hamilton, superintendent of safety, who directs the Frisco's safety program

Commuter Fare Cases

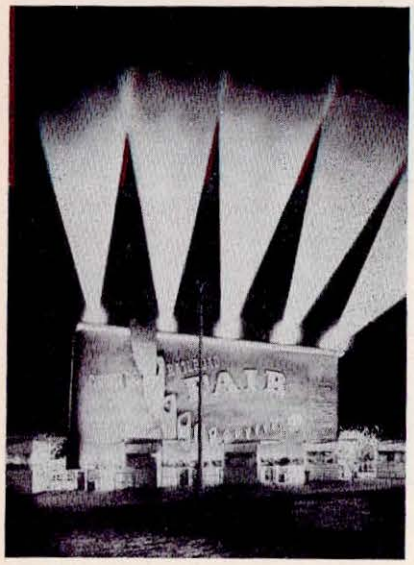
The Interstate Commerce Commission has discontinued its proceedings I. & S. Nos. 5653 and 5660, which involved applications of the Delaware, Lackawanna & Western and Erie, respectively, for authority to increase commutation fares in the New York area. The increases would have been effective May 1 and June 1, respectively, had the applications not been suspended for investigation, but the two roads subsequently filed tariffs cancelling the schedules under suspension, they meanwhile having filed other applications for authority to increase commutation fares on a different basis. The later applications also have been suspended for investigation by the commission, as reported in *Railway Age* of June 4, page 56, and June 25, page 123. These proceedings (I. & S. Nos. 5663 and 5668) remain before the commission.

No Railroad "Rates" for Express, I.C.C. Explains

The Interstate Commerce Commission in a report in No. 30177 has denied a petition of the Postmaster General asking it to ascertain the "rates paid the railroads" by the Railway Express Agency for carriage of express matter. The Postmaster General had requested the information so that he could arrange for transportation of mail matter at such rates.

The Postmaster General had asked the commission to get the following data from the R.E.A. and the railroads: (1) all information that could be ascertained from an investigation of the "rail transportation revenue" account of the R.E.A.; (2) a separation as between carload express and l.c.l. express traffic of the revenues received by railroads from the R.E.A.; (3) car-foot-miles of carload express and l.c.l. express traffic; and (4) an evaluation of services rendered by the roads in connection with the transportation of express, including the determination as to whether any "rates" maintained on express matter "include the empty return of cars occasioned by express traffic." The petition asked that the first three items be kept on a continuing basis and reported to the commission annually.

The commission said, "At the outset, it must be understood that the roads do not publish, maintain or charge rates to be collected from the Express Agen-



By no means the least spectacular feature of the Railroad Fair in Chicago is its brilliant night lighting, visible for miles around. Contributing much to the illumination are 39 Pyle-National "Gyralites" of the type used on locomotives. Five "Gyralites" atop the Fair's entrance each have a 650,000-candlepower beam, while smaller lights (200,000-candlepower beam each) are spaced throughout the mile-long area

cy for transportation of xpress matter, and do not initiate rates for the transportation of mail. Rates for transportation of mail are fixed and determined by us under powers granted by the act of July 28, 1916." The request "cannot be complied with," the report said.

The commission went on to state its opinion that the statute relied on by the Postmaster General (section 557, title 39 United States Code) "does not place upon us a duty or mandate to make an investigation and study of present operations of the railroads and the Express Agency in connection with the transportation of express matter, and the revenues derived therefrom, for the purpose of formulating rates, and that such section does not contain any direction to us from Congress that we should do so."

The commission noted that if it did conduct an investigation to determine the amount of express carried by the roads for the R.E.A. in any given time period, the information derived would reflect only the results of operations in that period and "would have no prospective effect or application." The commission added that data so obtained "would not result in an ascertainment of rates charged by the railroads" for service furnished the R.E.A.

However, the commission said that the Postmaster General is entitled to any information that it has as to the revenues received by the roads from the R.E.A. The report listed the following additional information the commission proposes to require the R.E.A. to supply separately for the eastern, southern and western railroad groups and consolidated for the country as a whole:

1. The express privilege payments to the railroads separated as between carload and l.c.l. traffic.
2. The amounts paid by the R.E.A. to motor, air and miscellaneous carriers for transportation service.
3. The car-foot-miles of registered express space on railroads, other than electric.
4. The number of shipments of express matter handled by the railroads, other than electric, stated separately for carload and l.c.l. traffic.

Commissioner Lee, concurring in part, said that the commission "should undertake to determine the amounts paid to the railroads for transporting express by car-foot miles or other units of service for such reasonable periods of time as the Postmaster General may request. The use which the Postmaster General might make of such information is not a matter to be determined by us."

Commissioners Patterson and Johnson did not participate in the disposition of the proceeding.

Freight Car Loadings

Revenue car loadings for the week ended August 13 totaled 728,029 cars, the Association of American Railroads announced on August 18. This was an increase of 11,205 cars, or 1.6 per cent, above the previous week; a decrease of 163,247 cars ,or 18.3 per cent, below the corresponding week last year, and a decrease of 178,276 cars or 19.7 per cent, under the equivalent 1947 week.

Loadings of revenue freight for the week ended August 6 totaled 716,824 cars, and the summary for that week as compiled by the Car Service Division, A.A.R., follows:

REVENUE FREIGHT CAR LOADINGS
For the week ended Saturday, August 6

District:	1949	1948	1947
Eastern	123,611	157,964	158,461
Allegheny	126,737	177,995	191,255
Pocahontas	46,442	73,421	70,856
Southern	105,068	128,402	129,277
Northwestern	132,481	139,991	142,381
Central Western	116,281	132,878	142,134
Southwestern	56,204	67,997	70,889
Total Western Districts	304,966	340,866	355,395
Total All Roads	716,824	878,647	905,244
Commodities:			
Grain and grain products	59,549	59,998	67,303
Livestock	8,916	10,114	12,368
Coal	108,525	184,824	178,105
Coke	9,153	15,035	13,831
Forest products	40,699	51,415	49,088
Ore	71,659	77,553	80,951
Merchandise l.c.l.	89,422	103,150	113,429
Miscellaneous	328,901	376,558	390,169
August 6	716,824	878,647	905,244
July 30	723,810	894,375	921,591
July 23	718,516	882,129	919,928
July 16	724,100	892,080	919,735
July 9	595,321	755,100	807,117
Cumulative total 31 weeks	22,214,551	25,129,841	26,084,988

In Canada.—Carloadings for the weeks ended July 30 and August 6 totaled 73,533 cars and 69,048 cars, respectively, as compared with 74,526 cars for the week ended July 23 and 75,968 cars and 73,341 cars, respectively, for the corresponding weeks last year, according to the compilation of the Dominion Bureau of Statistics.

	Revenue Cars Loaded	Total Cars Rec'd from Connections
Totals for Canada:		
July 30, 1949	73,533	29,463
July 31, 1948	75,968	32,227
August 6, 1949	69,048	29,097
August 7, 1948	73,341	32,972
Cumulative totals for Canada:		
August 6, 1949	2,238,960	961,059
August 7, 1948	2,316,334	1,072,256

June Truck Traffic

Motor carriers reporting to American Trucking Associations transported in June a total of 3,013,691 tons of freight, an increase of 6.6 per cent over the previous month's total of 2,826,934 tons and 0.5 per cent over the 2,997,286 tons hauled in June, 1948. The figures, according to A.T.A., are based on comparable reports from 317 carriers in 43 states.

Additional General News appears on pages 85, 87 & 88.

EQUIPMENT AND SUPPLIES

LOCOMOTIVES

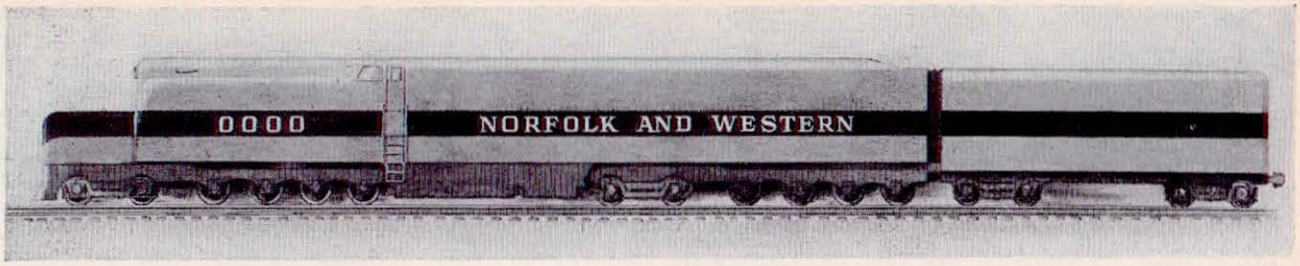
Norfolk & Western Orders Steam-Turbine Locomotive

The Norfolk & Western has placed an order for a new type of coal-burning, steam-turbine, electric drive locomotive, to be constructed by the Baldwin Locomotive Works, in collaboration with the Westinghouse Electric Corporation and the Babcock & Wilcox Co. The new locomotive is rated at 4,500 hp. and is designed for operation in freight service. The design will make use of exceptionally high boiler pressure combined with the efficiencies inherent in the steam-turbine electric drive to produce an overall thermal efficiency which is expected to cut fuel cost to one-half of that of the conventional reciprocating steam locomotive.

The boiler will be of the water tube type, to produce a steam pressure of 600 lb. per square inch, roughly double that of the conventional steam locomotive boiler.

Steam from the boiler will drive an impulse type turbine which will operate a two-unit direct-current electrical generator through a set of single reduction gearing. Current from this generator will drive the locomotive through 12 traction motors, one mounted on each axle of the locomotive. The locomotive will have desirable characteristics inherent with all electric drive locomotives, i. e., high starting effort, relatively light axle loading, and no reciprocating parts, plus the advantage of using a plentiful low-priced fuel.

The locomotive will have a 4-8-4-8



Artist's conception of the steam-turbine, water-tube-boiler locomotive ordered by the N. & W.

wheel arrangement and a separate water-carrying tender of 16,000 gal. capacity. Locomotive and tender in working order will weigh approximately 952,000 lb. and will have a combined overall length of approximately 148 ft. Twenty tons of coal will be carried in the nose ahead of the operator's cab.

Babcock & Wilcox will build the water tube boiler complete, Westinghouse will supply the steam turbine, generator, traction motors, and all electrical control equipment. Baldwin will design and build running gear, cab, tender, and other mechanical parts of the locomotive and will be responsible for the final erection.

MISCELLANEOUS

The **Chicago & Eastern Illinois** has ordered from the Evans Products Company, Plymouth, Mich., D/F (damage-free) loaders—to equip 18 freight cars, at a cost of $54,000. The loaders are of the type discussed in detail in the *Railway Age* of February 21, 1948, page 45.

FREIGHT CARS

The **Canadian National** has ordered from the Canadian Car & Foundry Co., for delivery early in 1950, two depressed center flat cars, which, it is reported, will be the first of their type to be placed in service by a Canadian railroad. Capable of carrying an axle load of 225 tons, the cars will be 60 ft. long and 10 ft. wide at the depressed center section which, at a height of 2 ft. 4 in. above the rail, is lower than in the ordinary depressed center car. Intended primarily for shipment of heavy transformers, the cars will have at each end six-wheel trucks with one-piece frames and special wheels and axles; they also will have special air-brake arrangements. The car frames will be one-piece castings with holes in the center section for anchoring the loads.

The **New Jersey, Indiana & Illinois** has ordered 50 50-ton box cars from the American Car & Foundry Co., with delivery to begin early in the fourth quarter of this year. Inquiry for this equipment was reported in the *Railway Age* of May 7.

The **New Orleans Public Belt** has ordered seven 70-ton covered hopper cars from the Thrall Car Manufacturing Company. These cars, which are expected to cost $5,246 each, are scheduled for delivery late this year.

The **Louisville & Nashville** has ordered 100 70-ton covered hopper cars from the Bessemer, Ala., plant of the Pullman-Standard Car Manufacturing Company. The cars, which will cost approximately $6,000 each, are scheduled for delivery in November.

Equipment on Order

Class I railroads installed more new locomotives and freight cars in the first seven months of 1949 than in any corresponding period in approximately 25 years, the Association of American Railroads has pointed out in its latest summary of equipment on order.

Class I roads put 1,157 new locomotives in service in that period, exceeding any corresponding period since 1923. These included 1,112 Diesel-electric and 45 steam. New locomotives installed in the same period of 1948 totaled 762, which included 730 Diesel-electric, 28 steam and 4 electric. They also had 1,009 new locomotives on order on August 1 this year, which included 25 steam, 4 electric and 980 Diesel-electric.

The Class I roads and railroad-owned private-controlled refrigerator car companies put 60,486 new freight cars in service in the first seven months of 1949. This was the greatest number installed in any corresponding period since 1926. In the same period of 1948, there were 58,892 put in service. Of those installed in the first seven months this year, there were 10,649 box which included 10,549 plain and ventilated and 100 automobile box cars; 4,203 refrigerator; 11,667 gondola; 32,258 hopper including 2,856 covered hoppers; 500 stock; 191 flat, and 1,018 miscellaneous freight cars.

Class I railroads and railroad-owned private-controlled refrigerator car companies installed 5,328 new freight cars in July. In June the figure was 7,060.

All railroads and private car lines had 36,564 new freight cars on order on August 1, 1949. Of this total, Class I railroads and railroad-owned private-controlled refrigerator car companies had 33,658 on order. They were as follows: 6,374 box, including 6,074 plain and evntilated and 300 automobile box cars; 12,337 hopper, including 2,039 covered hoppers; 8,702 gondolas; 3,825 flat; 2,162 refrigerator, and 258 miscellaneous freight cars.

Of those the Class I roads had on order, 16,544 will be built in railroad shops and 17,114 in outside shops.

Class I roads and railroad-owned private-controlled refrigerator car companies in the first seven months this year retired 45,381 freight cars compared, with 44,717 in the corresponding period last year. They retired 6,721 cars in July, 1949.

ORGANIZATIONS

Tie Producers' Meeting

The thirty-first annual convention of the Railway Tie Association will be held at the Peabody Hotel, Memphis, Tenn., September 12-14 inclusive. The tie producers and users will be welcomed to Memphis by W. E. Lamb, president of the Union Railway Company, and the program throughout will be studded with many committee reports and addresses on subjects of direct or indirect interest to railway men. All sessions will be conducted under the direction of T. H. Wagner, president of the association, of Gross & Janes Co., St. Louis, Mo. The program follows:

MONDAY, SEPTEMBER 12

Opening business

Address—Railroads' Economic Outlook for the Next 12 Months in Terms of Crossties, by Graham E. Getty, statistician, Association of American Railroads, Washington, D. C.

Report of Committee on Checking and Splitting of Crossties, by J. A. Vaughan, chairman—Southern Wood Preserving Company, Atlanta, Ga.

Address—The Problem of Peaks and Valleys in Tie Production, by B. N. Johnson, Koppers Company, Richmond, Ind.

Report of Committee on Mechanical Handling of Crossties, by Frederick C. Jones, chairman—T. J. Moss Tie Company, St. Louis.

TUESDAY, SEPTEMBER 13

Report of Committee on Manufacturing Practices, by Woodrow Epperson, chairman—Gross & Janes Co., Arkadelphia, Ark.

Address—Ties, Poles and Lumber in the Lands Down Under, by M. S. Hudson, Taylor-Colquitt Company, Spartanburg, S. C.

Address—Crossties—Pacific Coast and the South—Comparison of Practices and Problems, by J. R. Cade, assistant purchasing agent, Southern Pacific Lines, New Orleans, La.

Report of Committee on Specifications, by E. J. McGehee, chairman—Koppers Company, Chicago.

Annual Luncheon, to be addressed by the Hon. Gordon Browning, Governor of Tennessee.

WEDNESDAY, SEPTEMBER 14

Report of Committee on Timber Conservation, by D. B. Mabry, chairman—T. J. Moss Tie Company, St. Louis

Address—Crosstie Problems of the Engineer, by W. J. Hedley, assistant chief engineer, Wabash, St. Louis.

Address—Forestry and a Railroad, by Robert N. Hoskins, industrial forester, Seaboard Air Line, Norfolk, Va.

Report of Committee on Concentration Yards' Operations, by W. J. Chambliss, Jr., chairman—Bond Bros. Co., Louisville, Ky.

Roadmasters, B.&B. Men Meet At Chicago, September 12-14

The Roadmasters' and Maintenance of Way Association and the American Railway Bridge and Building Association will hold their annual meetings concurrently at the Hotel Stevens, Chicago, September 12 to 14, inclusive. Each group will have a separate program, but on several occasions during the three-day period joint sessions or other activities are scheduled.

The two associations will convene in a joint opening session on September 12, at 10 a.m., Chicago daylight saving time. The opening address will be delivered by J. H. Aydelott, vice-president, Operations and Maintenance Department, Association of American Railroads.

The second joint event will be a morning session on Tuesday, at which F. S. Schwinn, assistant chief engineer, Missouri Pacific Lines in Texas and Louisiana, and president of the American Railway Engineering Association, will discuss the 40-hr. week. At a third joint session on Tuesday afternoon, C. J. Geyer, vice-president, construction and maintenance, Chesapeake & Ohio, will speak on the subject What Now? You Can Help, and immediately afterwards C. M. Kimball, vice-president in charge of safety, Southern System, will speak on Personalizing the Safety Concept. Afterwards those present will view two moving pictures—one on The Use and Abuse of Track Motor Cars and the other on Mechanized Tie Handling.

On Tuesday evening there will be a joint annual banquet, tendered to the members of the two associations and their families by the Track Supply Association and the Bridge and Building Supply Men's Association.

The program of the roadmasters' meeting is as follows:

MONDAY, SEPTEMBER 12

11:00 a.m.—Address by President R. L. Fox.

11:20 a.m.—Report of Committee on Stimulating interest of Young Men in Maintenance of Way Work—W. M. S. Dunn, chairman (general roadmaster, N.Y.C. & St. L., Bellevue, Ohio)

1:00 p.m.—Report of Committee on Economies to be Gained Through the Proper Distribution of Ballast—A. W. Schroeder, chairman (chief engineer, C. & E.I., Danville, Ill.)

2:30 p.m—Report of Committee on Relation of Supervision to Maximum Production of Track Gangs—O H. Carpenter, chairman (general roadmaster, U.P., Pocatello, Idaho)

TUESDAY, SEPTEMBER 13

11:00 a.m.—Report of Committee on Preventing the Abuse of Tools and Work Equipment—S. E. Tracy, chairman (supt. of work equipment, C.B. & Q., Chicago)

3:45 p.m.—Report of Committee on Developing Good Housekeeping Habits Among Track Employees—C. E. Neal, chairman (general track supervisor, S. P., San Francisco, Cal.)

WEDNESDAY, SEPTEMBER 14

9:30 a.m.—Report of Committee on Recent Developments in Transportation of Maintenance of Way Track Forces and Materials—L. F. Barrs, chairman (roadmaster, S.A.L., Richmond, Va.)

10:15 a.m.—Address on Railroading on the Pacific Coast, by G. L. Morrison, assistant engineer maintenance of way, S. P., San Francisco.

11:00 a.m.—Business session.

1:15 p.m.—Trip to inspect the foundry and frog and switch shop of the Pettibone Mulliken Corporation, Chicago.

The schedule of events of the separate sessions of the Bridge and Building Association follows:

MONDAY, SEPTEMBER 12

11:00 a.m.—Address by President E. H. Barnhart.

11:20 a.m.—Report of Committee on Safety in the Transportation of Men and Material—J. M. Giles, chairman (asst. engineer, Mo. Pac., St. Louis, Mo.)

2:00 p.m.—Report of Committee on Installation and Maintenance of Built-Up Composition Roofs—W. H. Bunge, chairman (asst. engineer, Mo. Pac., Houston, Tex.)

2:30 p.m.—Report of Committee on Methods and Materials for Fire Protection of Bridges and Trestles—L. R. Morgan, chairman (fire prevention engineer, N.Y.C., Detroit, Mich.)

3:00 p.m.—Report of Committee on Prolonging the Life of Ties on Bridges and Trestles—H. D. Curie, chairman (master carpenter, B.&O., Garrett, Ind.)

TUESDAY, SEPTEMBER 13

11:00 a.m.—Report of Committee on Methods of Preventing and Removal of Corrosion from Steel Structures—W. C. Harman, chairman (bridge and building supervisor, S.P., San Francisco.)

3:45 p.m.—Report of Committee on Disposal of of Liquid Waste at Engine Terminals—J. A. Jorlett, chairman (asst engineer, Penna., New York)

WEDNESDAY, SEPTEMBER 14

9:30 a.m.—Report of Committee on Developments in Modern Methods for Watering Passenger Cars—W. D. Gibson, chairman (water service engineer, C.B. & Q., Chicago)

10:15 a.m.—Report of Committee on Pier Construction and Maintenance on Waterfront Terminals — F. W. Hutcheson, chairman (supervisor bridges and buildings, C. & O., Newport News, Va.)

11:00 a.m.—Business session.

1:15 p.m.—Trip to inspect the wood preserving plant and operations of the Joslyn Manufacturing & Supply Co., at Franklyn Park, (Chicago).

The **Pacific Coast Transportation Advisory Board** will hold its next regular meeting on September 14 and 15, at the Palace Hotel, San Francisco, Cal. A. E. Stoddard, president of the Union Pacific will be the guest speaker.

Frederic B. Whitman, president of the Western Pacific, was the guest speaker at the annual railroad night of the **Pacific Traffic Association,** at the Palace Hotel, San Francisco, Cal., on August 9. Mr. Whitman spoke on Our Railroads and Continued Progress in the West. John H. Coupin, general agent, W.P., was general chairman of the meeting.

The **Instrument Society of America** will hold its 1949 conference and exhibit at the St. Louis, Mo., Auditorium, September 12-16.

SUPPLY TRADE

Net Income of Pullman, Inc., Shows Gain of $1,144,050

The net income of Pullman, Incorporated, in the first half of 1949 was $3,918,266, or $1.56 a share, compared with $2,774,216, or $1.07 a share, for the same period of 1948, David A. Crawford, president, stated in his interim report to stockholders on August 16. Sales of products and services increased $10,478,130 during the first six months of this year,, rising from $131,895,812 in 1948 to $142,373,942.

Mr. Crawford said that production in Pullman-Standard Car Manufacturing Company's freight car division has continued at a rate limited by the orders available, and amounted to 12,469 cars in the first half of this year, as compared with 14,879 a year ago. Production of the railway passenger car division, he said, has continued on an improving trend, reaching a total of 268 cars in the first six months of this year, as compared with 185 a year ago. He added, however, that the absence of new freight car orders in recent months and the shrinkage in the backlog of orders for that division foreshadow a decline in production and earnings during the second half of 1949.

Standard Forgings' Profit Up

The Standard Forgings Corporation, Chicago, has reported a net profit of $483,101 for the six months ended June 30, 1949, equivalent to $1.82 a share on 266,000 shares of $1 par value common stock outstanding, compared with a net profit of $425,072, or $1.60 a share on the same number of shares, for the corresponding period of 1948. Net sales for the first half of 1949 totaled $8,293,734, compared with sales of $6,791,783 for the corresponding period of last year.

Budd Company's Half-Year Earnings "Highest in History"

Both sales and earnings of the Budd Company for the six months ended June 30 were "the highest for any comparable period in the company's history," Edward G. Budd, Jr., president, said on August 12 in a special letter to stockholders.

Total sales for the half year amounted to $137,749,081, which Mr. Budd called "a very satisfactory increase" over the $108,986,714 in the first half of 1948. Earnings in 1949's first six months came to $2 per common share, after taxes and preferred dividends, against $1.37 in the comparable period of last year.

"Railway passenger car deliveries," Mr. Budd's letter said in part, "are at a higher level, which is attributable to improved manufacturing efficiency in that division. The Railway division completed and delivered 166 cars in the first six months of 1949, compared with 117 cars in the first half of 1948." The 1949 deliveries, he added, included six sets of equipment for the "California Zephyr"; two sets for the "New England States"; a number of all-room sleeping cars for the Pennsylvania and the New York Central, and 30 of 63 cars for the Central of Brazil. The company's backlog of orders as of June 30 was $130 million.

"Negotiations with the unions continue to be difficult," the letter concluded. "In general, however, our relations with our employees remain satisfactory."

H. L. Hexamer, recently promoted to district manager, Railway division, of the **Timken Roller Bearing Company,** at St. Louis, Mo., has been transferred to Cleveland, Ohio, in the same capacity. **Paul N.**

Wilson, district manager, Railway division, Chicago, will temporarily handle railway sales at St. Louis, in addition to those at Chicago. The St. Louis office will be maintained at a new location, 2100 South Vandeventer avenue. A photograph and sketch of Mr. Hexamer's career appeared in the *Railway Age* of May 14.

George E. Gilliam has been placed in charge of pyrometer sales nationally for the Brown Instrument division of the **Minneapolis-Honeywell Regulator Company,** with headquarters at the company's office in Philadelphia, Pa. Mr. Gilliam was formerly located at the South Bend (Ind.) branch office.

John E. Dixon, formerly president of the **Lima-Hamilton Corporation,** has been elected chairman of the board, to succeed **Samuel G. Allen,** resigned; **D. S. Ellis,** vice-president at Lima, Ohio, has been elected president, and **W. A. Rentschler** has been elected executive vice-president, all as announced in the *Railway Age* of August 13.

Mr. Dixon, now chairman of the board, received the degree of B.S. in M.E. at the University of Wisconsin. In 1900 he entered the shops of the Brooks Locomotive Works, which in 1901 became a part of the American Locomotive Company. He served consecutively as assistant fore-

John E. Dixon

man, foreman, draftsman, traveling engineer, and chief inspector until 1904 when he was transferred to the New York office of the American Locomotive Company. He was later assistant manager and manager of the Atlantic Equipment Company and from 1907 to 1916 was salesman and assistant manager of sales for the American Locomotive Company. In 1916 he became vice-president of the Lima Locomotive Works at New York and in 1939 was elected president of the company. Upon the merger of the Lima Locomotive Works and the General Machinery Corporation he continued as president of the Lima-Hamilton Corporation. Mr. Dixon is also a director of Lima-Hamilton, as well as of the Franklin Railway Supply Company, Combustion Engineering-Superheater, Inc., Niles Tool Works Company, and the Hooven, Owens Rentschler Company.

Mr. Allen, the retired chairman of the board, was born on August 24, 1870, at Warren, Pa. He studied law and was admitted to the bar on August 24, 1891. On January 1, 1900, he left law practice to engage in the railway supply business, becoming vice-president of the Franklin Railway Supply Company in 1902. In March, 1910, with Joel S. Coffin, he organized the American Arch Company, and in June of the same year,

Samuel G. Allen

again with Mr. Coffin and George L. Bourne, the Locomotive Superheater Company, which is now Combustion Engineering-Superheater, Inc. In April, 1916, with Mr. Coffin, Mr. Allen purchased and reorganized the Lima Locomotive Corporation. Again with Mr. Coffin and George M. Basford in 1916 he organized the G. M. Basford Company. Mr. Allen is chairman of the board of the Franklin Railway Supply Company, the American Arch Company, and the G. M. Basford Company. He is also chairman of the executive committee of Combustion Engineering-Superheater, Inc.

Mr. Ellis, the new president, was born in Warwick, N. Y., on January 25, 1897, and attended high school at Warwick. In 1916 he became a clerk in the auditor's office of the Lehigh & Hudson River; in 1917 a clerk in the assistant freight agent's office of the New York Central, and, later in 1917, a machinist helper. In 1918 he became a draftsman; from 1920 to 1922 was a draftsman, checker, and calculator, and from 1922 to 1924 was a designer and traveling engineer. In 1924 Mr. Ellis was appointed assistant engineer, and in 1925, assistant engineer of motive power of the N.Y.C. On May 1, 1929, he was appointed eastern district manager and, subsequently, manager, of the Railroad division of the Worthington Pump & Machinery Corp. On October 1, 1932, he resigned to become engineer of motive power of the Advisory Mechanical Committee of the Chesapeake & Ohio, Erie, New York, Chicago & St. Louis, and Pere Marquette, with headquarters at Cleveland, Ohio. In January, 1936, he was appointed mechanical assistant to the vice-president of the C. & O., the N.Y.C. & St. L. and the P.M., and in July, 1936, chief mechanical officer. On May 1, 1943, he became vice-president in charge of manufacturing of the Lima Locomotive Works at Lima. Upon the merger in the fall of 1947 of the Lima Locomotive Works and the General Machinery Corporation of Hamilton, Ohio, under the name of the

D. S. Ellis

Lima-Hamilton Corporation, Mr. Ellis continued as vice-president of the new corporation at Lima.

Mr. Rentschler, now executive vice-president, is a graduate of Princeton University. He started his business career in 1925 with the Hooven, Owens, Rentschler Company. He became a vice-president of the General Machinery Corporation in 1929 and was elected presi-

W. A. Rentschler

dent of that company in 1946. Upon the formation of the Lima-Hamilton Corporation in the fall of 1947, he became a vice-president of the new corporation. Mr. Rentschler has also been president of the Niles Tool Works Company, a division of Lima-Hamilton, since 1938. He is also a director of the Hamilton Foundry & Machine Co., Hamilton, Ohio.

Frank E. Cheshire, whose appointment as manager of sales, railway division, of the **International Steel Company,** Evansville, Ind., was reported in the *Railway Age* of July 16, was born at Cumberland, Md., on April 27, 1898. He received his higher education at Potomac State College, Keyser, W. Va., and Davis-Elkins College, Elkins, W. Va., entering railroad service in 1915 as a special apprentice of the Baltimore & Ohio, at Keyser, and subsequently serving as work inspector and assistant foreman at that point. Later Mr. Cheshire was promoted consecutively to repair accountant, shop foreman and general foreman at various points on the road. In July, 1926, he joined the Missouri Pacific as assistant general inspector, mechanical department, at St. Louis, Mo., and one year later was advanced to general inspector. In March, 1940, he was promoted to assistant superintendent, car department, and in February, 1942, he was furloughed to serve with the armed forces. He subsequently held various military posts and attained the rank of colonel. Mr. Cheshire returned to the M. P. in June, 1945, and was appointed master mechanic of the Central

Frank E. Cheshire

Kansas and Colorado divisions. He became chief mechanical officer of the Chicago, Indianapolis & Louisville, at Lafayette, Ind., in 1946. He served successively with the Monon as general manager, vice-president—operation, and vice-president, subsequently becoming associated with the General American Transportation Corporation as transportation engineer, which position he held prior to his recent appointment.

Frank M. Mason, Jr., manager of the Research division, **Fairbanks, Morse & Co.,** at Chicago, has been appointed director of engineering at that point.

Richard V. Chase, New England district manager, **Pullman-Standard Car Manufacturing Company,** at Worcester, Mass., has been elected vice-president, with the same headquarters. Mr. Chase began his carbuilding career in 1924 as lumber agent for the Standard Steel Car Manufacturing Company, and two years later joined the Keith Car & Manufacturing Co., Sagamore, Mass., as assistant vice-president and secretary. In 1929 he was appointed assistant vice-president of the Osgood-Bradley Car Company at

Richard V. Chase

Worcester, and in 1932, following acquisition of Osgood-Bradley by Pullman-Standard, he became superintendent of that plant. Mr. Chase was advanced to manager of works in 1944 and later that year was appointed New England district manager.

Fred T. Wiggins, western sales vice-president of the **Universal Atlas Cement Company (United States Steel Corporation** subsidiary) at Chicago, has been elected vice-president and assistant general sales manager at New York. **George S. Neel,** metropolitan Chicago sales manager, has succeeded to the duties of Mr. Wiggins as western sales manager, with jurisdiction over the company's sales offices at Kansas City, Mo., St. Louis, Minneapolis, Minn., and Waco, Tex. Succeeding Mr. Neel is **Wendell R. Doolittle, Jr.,** assistant sales manager of the Chicago territory. **Thomas E. Bertelson,** Indiana-Michigan district sales manager, has replaced Mr. Doolittle, and has been succeeded in turn by **Joseph R. Lair,** sales representative in northern Indiana.

OBITUARY

Lloyd H. Durbin, service engineer at Butler, Pa., for the O. C. Duryea Corporation, was killed on August 11 in the crash of a private airplane near Brookville, Pa.

Frank H. Cunningham, Pacific coast representative of the Prime Manufacturing Company, died on August 9, at his home in Santa Monica, Cal. Mr. Cunningham began his career with the Norfolk & Western and later served successively with the Standard Stoker Company, the Franklin Railway Supply Company and the Graham-White Sander Corporation.

William Hugh Coverdale, 78, one of the founders of the consulting engineering firm of Coverdale & Colpitts, whose death on August 10 was reported in the *Railway Age* of August 13, was born at Kingston, Ont., where he attended Collegiate Institute. Mr. Coverdale received his B.A. degree in 1891 and his D.S. degree in 1914 from Geneva College, Beaver Falls, Pa., and his Ll.D. degree in 1922 from Queen's University. He

William Hugh Coverdale

served in the engineering department of the Pennsylvania lines west of Pittsburgh, from 1891 to 1900 and began his consulting engineering practice at New York in 1901, becoming a member of the firm of Coverdale & Colpitts in 1913. Mr. Coverdale was a director and member of the executive committee of the Republic Steel Corporation and the Seaboard Air Line and a director of the Richmond, Fredericksburg & Potomac, the Canadian Car & Foundry Co. and the Tennessee, Alabama & Georgia. He was a member of the American Society of Civil Engineers and the American Institute of Consulting Engineers.

FINANCIAL

Boston & Maine.—*Stock Adjustment.*—In a proposed report Examiner Homer H. Kirby has recommended that the Interstate Commerce Commission make the findings necessary for this road to submit to its stockholders for acceptance or rejection its proposals for a voluntary readjustment of its capital structure under the terms of section 20b of the Interstate Commerce Act, the so-called Mahaffie Act. As reported in *Railway Age* of January 29, page 46, the readjustment plan contemplates an exchange of existing stocks (prior preference, first preferred, non-cumulative preferred, and common) for new 5 per cent preferred and new common as there described, the objective being to clear up dividend arrears, simplify the capital structure, and reduce the aggregate par value of stock outstanding from $104,347,300 to $82,-

443,178. The examiner recommends that the commission find the plan as proposed in the public interest.

Missouri-Kansas-Texas. — *Adjustment Mortgage.*—The Interstate Commerce Commission has set for hearing at Washington, D. C., before Examiner John L. Bradford on October 3 this road's application for authority to modify the provisions of its adjustment mortgage to satisfy unpaid interest accrued on such bonds amounting to $350 per $1,000 bond (see *Railway Age* of May 7, page 66). It is proposed to satisfy such interest accruals by issuing secured debentures equal in principal amount to the unpaid interest, these debentures bearing 1 per cent contingent interest accumulating to the extent of 4 per cent.

New Securities

Application has been filed with the Interstate Commerce Commission by:

Chicago, Milwaukee, St. Paul & Pacific.—To assume liability for $5,640,000 of series JJ equipment trust certificates to finance in part the following equipment

	Description	Estimated Unit Cost
200	41-ft. 6-in. 50-ton all-steel gondola cars with drop doors	$ 3,975
2000	41-ft. 6-in. 50-ton composite type gondola cars	3,200
50	Cabooses, all-steel	6,900

The cars are to be built in the Milwaukee's shops. Total estimated cost of the equipment is $7,540,000. The certificates would be dated September 1, would mature in 30 semiannual installments of $188,000 each, beginning March 1, 1950, and would be sold on the basis of competitive bids.

Chicago, Rock Island & Pacific.—To assume liability for $3,552,000 of series F equipment trust certificates to finance in part the following equipment:

	Description	Estimated Unit Cost
500	70-ton flat-bottom, drop-end, all-steel gondolas	$ 5,500
4	Air-conditioned suburban passenger coaches	105,000
8	Air-conditioned suburban passenger coaches	104,000
8	Non-air-conditioned suburban passenger coaches	92,100

The gondolas are to be built in the Rock Island's shops. Total estimated cost of the equipment is $4,738,800. The certificates would be dated October 1, would mature in 24 semiannual installments of $148,000 each, beginning April 1, 1950, and would be sold on the basis of competitive bids.

Division 4 of the I.C.C. has **authorized**:

New York, Ontario & Western.—To issue $3,323,000 of 3 per cent equipment trust certificates to be delivered to the Reconstruction Finance Corporation in exchange for certificates issued in 1941, 1945 and 1947. The new issue will consolidate and extend the three previous issues, reducing the annual amount of payments. In a separate report, the commission also approved the proposed rearrangement of the R.F.C. loan to the new basis. The certificates, dated June 1, will be amortized quarterly from March 1, 1950, to and including June 1, 1959.

Louisiana & Arkansas.—To assume liability for $5,640,000 of equipment trust certificates to refinance balances due on 12 Diesel-electric locomotives, 900 freight cars, and 10 passenger-service cars originally purchased under conditional sales contracts and delivered during 1948 and the first part of this year (see *Railway Age* of July 23, page 55). The certificates will be dated August 1 and will mature in 24 semiannual installments of $235,000 each, beginning February 1, 1950. The commission's report approved a selling price of 100.1599 with a 2¼ per cent interest rate—the bid of Halsey, Stuart & Co. and 10 associates, which will make the average annual interest cost approximately 2.22 per cent. The certificates were reoffered to the public at prices yielding from 1.10 to 2.50 according to maturity.

Average Prices Stocks & Bonds

	Aug. 16	Last week	Last year
Average price of 20 representative railway stocks	37.95	38.54	48.08
Average price of 20 representative railway bonds	85.81	85.29	89.45

Dividends Declared

Chicago, Rock Island & Pacific.—common, 75¢; 5% preferred series A, $1.25, both payable September 30 to holders of record September 15.

Delaware & Bound Brook.—50¢, quarterly payable August 20 to holders of record August 12.

Pittsburgh, Youngstown & Ashtabula.—7% preferred, $1.75, quarterly, payable September 1 to holders of record August 20.

Virginian.—common, 62½¢, quarterly, payable September 23 to holders of record September 9; 6% preferred, 37½¢, quarterly, payable November 1, February 1, 1950, May 1, 1950 and August 1, 1950, to holders of record October 17, January 16, 1950, April 17, 1950, and July 17, 1950.

RAILWAY OFFICERS

EXECUTIVE

W. Q. VanCott, counsel of the Utah, at Salt Lake City, Utah, has been appointed vice-president and counsel at that point.

J. D. Rezner, Jr., whose promotion to assistant to vice-president—traffic of the Chicago, Burlington & Quincy, with headquarters at Chicago, was reported in the *Railway Age* of July 30, was born at Monmouth, Ill., on September 6, 1918. Following graduation from Lincoln (Neb.) High School in 1934, he attended the University of Nebraska for two years and subsequently studied at the Lincoln School of Commerce. In 1938 he entered service with the Burlington as an electrician's apprentice at the Aurora (Ill.) shops and later the same year he became employed as a clerk by the Burlington Transportation Company (subsidiary of the Burlington Lines), at Chicago. During 1940 he served as a stenographer in the Burlington's traffic department at Chicago, and in 1941 he became secretary to the assistant to vice-president—traffic at that point. He was transferred to the traffic department at Kansas City, Mo., in 1942, as city freight agent, and later that year was appointed secretary to the vice-president—traffic at Chicago. Mr. Rezner was granted a leave of absence to serve in the United States Army in September, 1943, returning to his former position as secretary to the vice-president—traffic in April, 1946. He became general agent, Burlington Lines, at Tulsa, Okla., in March, 1947, which position he held at the time of his promotion.

FINANCIAL, LEGAL & ACCOUNTING

The Denver & Rio Grande Western has announced the appointments of **R. W. Root** as auditor of taxes, **J. T. Johnston** as auditor of passenger accounting, and **O. K. Lindl** as auditor of car service accounting.

A. V. Mims, assistant secretary and assistant treasurer of the International-Great Northern and the Gulf Coast Lines (parts of the Missouri Pacific Lines), has been elected secretary and treasurer of both roads, and treasurer and assistant secretary of the New Orleans, Texas & Mexico (also part of the M. P.), with headquarters as before at Houston, Tex.

M. T. Klinefelter has been elected treasurer of the White Pass & Yukon Route.

J. H. Dehen has been appointed auditor of freight accounts, Elgin, Joliet & Eastern, at Chicago, succeeding the late **A. W. Heintz.**

W. J. Conaty, tax commissioner and director of valuation of the Chesapeake & Ohio has retired after 49 years of service with that road. Mr. Conaty was born in Richmond, Va., 65 years ago and entered the service of the C. & O. at Norfolk, Va., as a messenger in the freight office, subsequently serving as stenographer, tariff compiler and statistical clerk. In April, 1920, he was appointed valuation auditor and supervisor of valuation and, in 1928, director of valuation. He became tax commissioner in June, 1935.

OPERATING

C. H. Hardwick, district maintenance engineer of the Chicago, Rock Island & Pacific at Des Moines, Iowa, has been promoted to superintendent, Arkansas division, with headquarters at Little Rock, Ark., succeeding **C. G. Adams,** who has retired after 47 years of service. The headquarters of **C. G. Williams,** superintendent automotive equipment, and **H. C. McCullough,** superintendent of motive power, at Kansas City, Mo., have been moved to El Reno, Okla.

H. A. Smith, trainmaster of the McCloud River, at McCloud, Cal., has been promoted to superintendent.

Joseph H. Gridley, assistant to manager of the Southern Pacific's dining car, hotel, restaurant and news service at San Francisco, Cal., has been promoted to manager of the dining car department, succeeding **Harry A. Butler,**

whose retirement was reported in the *Railway Age* of August 13.

Mr. Butler was born on June 11, 1885 and attended the University of San Francisco, where he received a B. A. degree in 1905. He began his railroad career with the S. P. in February, 1906, serving until 1908 as clerk and chief clerk, commissary department, at Los Angeles, Cal., and San Francisco. He subsequently became employed by the Oregon R. R. & Navigation Co. (now part of the Union Pacific) at Portland, Ore., as chief clerk, commissary department, returning to the S. P. in October, 1909, as chief clerk, dining car, hotel and restaurant department, at Oakland, Cal. After holding the same position at San Francisco, he became assistant commissary agent at that point in 1911. From 1913 to 1915 he worked for the Oregon-Washington R. R. & Navigation Co. (now also part of the U. P.) as chief clerk and inspector, and subsequently served with the S. P. successively as inspector, assistant commissary agent, commissary agent, assistant to manager and assistant manager at Oakland, San Francisco and Los Angeles. Mr. Butler was promoted to manager, dining car, hotel, restaurant and news service in January, 1932, from which post he is retiring.

O. K. Lawson, whose appointment as division superintendent, Hocking division, of the Chesapeake & Ohio, with headquarters at Columbus, Ohio, was announced in the *Railway Age* of August 6, was born in Graves county, Ky., on January 16, 1901. A graduate of the University of Kentucky (B.S. in civil engineering, 1928), Mr. Lawson entered railway service as a section laborer, maintenance of way department, C. & O.,

O. K. Lawson

on June 4, 1928. He became a rodman on March 18, 1929, was appointed assistant cost engineer on February 1, 1930, and on September 26, 1937, was assigned to Handley, W. Va., as yardmaster. He served in that capacity until March 1, 1939, when he became assistant terminal trainmaster at Walbridge, Ohio. Mr. Lawson was promoted to terminal trainmaster at Walbridge on May 1, 1942. On February 1, 1946, he was advanced to assistant chief of personnel at Richmond, Va., and in 1947 became superintendent of terminals at Walbridge, the post he held at the time of his recent promotion.

O. H. Osborn, whose promotion to assistant general manager of the Gulf, Colorado & Santa Fe at Galveston, Tex., was reported in the *Railway Age* of July 23, was born at Chanute, Kan., on January 31, 1907. He attended grade and high school at Chanute and studied law for four years at the LaSalle Extension University in Chicago. Mr. Osborn entered railroad service with the Santa Fe in 1926 as a stenographer in his home town, and subsequently held various clerical positions with the Panhandle & Santa Fe at Slaton, Tex. He was advanced to transportation inspector of the

O. H. Osborn

Santa Fe at Dodge City, Kan., in 1937; to trainmaster of the P. & S. F. at Slaton in 1938; to trainmaster, New Mexico division, in May, 1941; to superintendent of the Gulf division, G. C. & S. F., in December, 1941; and to superintendent of the Northern division at Fort Worth, Tex., in 1943. During World War II, Mr. Osborn served as a lieutenant colonel with the Military Railway Service, returning to the G. C. & S. F. in his last-held post at Fort Worth in April, 1946. He was transferred in September, 1946, to Winslow, Ariz., remaining at that point until June, 1948, when he went to Emporia, Kan., as superintendent. He was located at the latter point at the time of his recent advancement.

F. D. Lonergan has been appointed assistant to general manager of the Delaware & Hudson at Albany, N. Y. The position of office assistant to vice-president and general manager has been abolished.

E. G. Wesson, whose promotion to general superintendent, Omaha, Lincoln and Wymore divisions, of the Chicago, Burlington & Quincy, at Lincoln, Neb., was reported in the *Railway Age* of August 13, began his service with the Burlington in the signal department at Chicago in 1911. Mr. Wesson served as assistant signal engineer at Lincoln from 1926 until 1939, at which time he was appointed trainmaster at Hannibal, Mo. He was transferred to Aurora, Ill., in 1941, and

E. G. Wesson

the following year went to Chicago as assistant to general manager. He was advanced to superintendent, Aurora-La Crosse division, in November, 1947, which position he held at the time of his recent promotion.

E. C. Mitchell, road foreman of engines, Chesapeake & Ohio, at Stevens, Ky., has been promoted to trainmaster at that point.

J. T. Cunningham, assistant general manager—operations of the Alaska, with headquarters at Anchorage, Alaska, has retired after 33 years of service. **John E. Manley,** superintendent of operations at that point, has become acting assistant general manager—operations, replacing Mr. Cunningham. **R. V. Boyd,** trainmaster at Anchorage, has succeeded Mr. Manley, as acting superintendent of operations.

Thomas C. Smith, assistant general manager of the Western region of the Baltimore & Ohio, has been appointed general manager of that region, with headquarters as before at Cincinnati, Ohio, succeeding **F. B. Mitchell,** who has retired after a railroad career that spanned a full half-century. Mr. Smith started his railroad career with the B.&O. as a clerk at Akron, Ohio, in May, 1906, at the age of 16. In 1910 he became a night yardmaster at Akron and in 1917 moved up to terminal trainmaster there. The years 1923 and 1924 he spent at North Vernon, Ind., as acting terminal trainmaster, moving back to Akron as terminal trainmaster in September, 1924. Mr. Smith was appointed assistant superintendent of the Chicago division at Willard, Ohio, in 1926; terminal trainmaster at Willard in 1931, and superintendent of the Cincinnati Terminal on June 1, 1935. On November 1, 1936, he became superintendent of the Ohio division at Cincinnati and was appointed

News Department continued on next left-hand page.

with an EYE to maintenance

Simplicity and accessibility are two cardinal virtues of any mechanical device. Combined they make possible ease of maintenance with reliability following naturally. With this as our golden rule, many refinements suggested by experienced operating engineers and others conceived by ourselves have been incorporated in this new switcher. The novel arrangement of electrical controls and auxiliary equipment, providing easy and ample access for inspection and adjustment, is a fair example. Water-cooling of the engine exhaust manifold to equalize thermal expansion in related connections, thereby eliminating causes of serious exhaust gas leaks, is another.

The major consideration in ease of maintenance is a comfortable margin of ready power in the prime mover at all conditions of operation. The diesel engine in this switcher is a powerful rugged four-cycle supercharged type with 8-cylinder in-line configuration. All parts of it are precision machined requiring no hand fitting. Since the engine is supercharged, pistons are made smaller. With lighter reciprocating weights, the engine responds more rapidly to throttle changes. This procedure conforms strictly to modern trends in diesel-engine design.

Accessibility has been emphasized in the diesel-engine construction. For example, all gears in the timing train can be removed easily without disturbing the electric generator. Any piston can be pulled without removing its respective cylinder liner.

Arrange to have your people who know railroad diesels take a careful look at this switcher. It is powered by our own Hamilton-built engine which provides a full 1000 horsepower to the traction motors. Standard Westinghouse electrical equipment is used. Accessories are standard and of highest grade.

LIMA HAMILTON CORPORATION

DIVISIONS: *Lima, Ohio*—Lima Locomotive Works Division; Lima Shovel and Crane Division. *Hamilton, Ohio*—Hooven, Owens, Rentschler Co.; Niles Tool Works Co. *Middletown, Ohio* — The United Welding Co.

PRINCIPAL PRODUCTS: Locomotives; Cranes and shovels; Niles heavy machine tools; Hamilton diesel and steam engines; Hamilton heavy metal stamping presses; Hamilton-Kruse automatic can-making machinery; Special heavy machinery; Heavy iron castings; Weldments.

assistant general manager of the Western region on May 1 of this year.

Mr. Mitchell was born at Cuba, Ohio, on August 18, 1879, and began his railroad career on October 23, 1899, as

Thomas C. Smith

telegraph operator with the Baltimore & Ohio Southwestern (now B.&O.), becoming secretary to superintendent of that road in May, 1901. From April to September, 1902, he served as car distributor of the Chicago Great Western

F. B. Mitchell

at St. Paul, Minn., then becoming secretary to superintendent of the B. & O. at Chicago. From January to December, 1903, Mr. Mitchell was secretary to general superintendent of the B. & O. S. W. at Cincinnati, becoming car service clerk in December, 1903; assistant trainmaster at Chillicothe, Ohio, in April, 1910; trainmaster at Seymour, Ind., in January, 1911; assistant superintendent at Cincinnati in March 1912, and superintendent at Flora, Ill., in April, 1912, all with the B.&O. Southwestern. He was appointed superintendent of the B. & O. at Dayton, Ohio, in June, 1913, and became general superintendent of the Southwest district at Cincinnati in October, 1917, transferring to the Northwest district at Cleveland, Ohio, in June, 1929. Mr. Mitchell became general manager of the Western region in May, 1932.

TRAFFIC

G. C. Ross, traffic manager of the Duluth, Missabe & Iron Range at Duluth, Minn., has retired at his own request after more than 33 years of service with that road. He has been succeeded by **J. L. Abramson,** assistant traffic manager at that point. Mr. Ross entered railroad service in August, 1905, as a tariff clerk in the traffic department of the Illinois Central, and eight years later became chief tariff clerk. In 1915 he left the I. C. to engage in farming at Dickinson, N. D., returning to railroad service the next year as tariff clerk on the Western Trunk Line Committee. He joined the Duluth, Missabe & Northern (predecessor of the D. M. & I. R.) as tariff clerk, traffic department, in 1916, being promoted to assistant general freight and passenger agent in 1920. Mr. Ross was advanced to traffic manager in July, 1925.

Mr. Abramson was born at Hancock, Mich., on February 12, 1895. He attended Dodge's Institute of Telegraphy, Valparaiso, Ind., and studied with the International Correspondence Schools, Scranton, Pa., and the College of Advanced Traffic, Chicago. He began his railroad career in June, 1910, on the Copper Range, serving as section laborer, telegraph operator, station agent and train dispatcher until 1919, when he joined the D. M. & I. R. He was subsequently appointed station cashier at Coleraine, Minn., and in 1923 was made rate clerk in the traffic department at Duluth. He was advanced to traffic agent at the latter point in June, 1939, and became assistant to traffic manager there in December, 1945. Mr. Abramson was further advanced to assistant traffic manager in August, 1948.

Michael N. Lallinger, whose promotion to general freight agent of the St. Louis-San Francisco at St. Louis, Mo., was reported in the *Railway Age* of July 30, is a native of Louisville, Ky. He began his railroad career with the Frisco in November, 1913, as overcharge claim investigator, subsequently being advanced to chief clerk, overcharge claim division, of the accounting department. In 1935 Mr. Lallinger was transferred to the traffic department as special representative. He was serving as assistant general freight agent at St. Louis at the time of his recent promotion.

Alfred L. Bardgett, whose promotion to general freight agent of the St. Louis-San Francisco at St. Louis, Mo., was reported in the *Railway Age* of July 30, was born at St. Louis on January 30, 1897, and entered railroad service with the Frisco there in September, 1913. He subsequently held various positions in the freight traffic department until his promotion to chief clerk to the assistant general freight agent at St. Louis in 1928. The following year he was appointed assistant chief clerk, freight traffic department, and in 1930 was advanced to chief clerk in the same department. Mr. Bardgett became assistant general freight agent in November, 1938 and continued to hold that position until his recent promotion.

R. Bert Weaver, whose promotion to assistant passenger traffic manager of the Gulf, Mobile & Ohio at St. Louis, Mo., was reported in the *Railway Age* of August 13, was born on September 23, 1899, in that city. He entered the service of the Chicago & Alton (now G. M. & O.) in 1918 as ticket stock man, and subsequently held positions as station passenger agent, cashier and refund clerk. In 1922 he was appointed city passenger agent at Peoria, Ill., and in 1924 was transferred to Chicago. His next positions were, successively, traveling passenger agent, general agent in the passenger department, and assistant general passenger agent. Mr. Weaver became general passenger agent at Chicago in October, 1947, in which capacity he was serving at the time of his promotion.

H. S. Lemmons has been appointed general agent of the Wichita Falls & Southern, at Breckenridge, Tex.

J. R. Bowie, agent of the White Pass & Yukon Route, at Dawson Creek, B. C., has been promoted to general agent, with the same headquarters.

W. D. Gordon and **J. H. DeGette** have been appointed district freight agents of the Pennsylvania, at Chicago and San Antonio, Tex., respectively. **L. F. Jacobs** has been appointed district passenger agent at Louisville, Ky.

James P. Cole has been appointed manager of merchandise traffic of the Gulf, Mobile & Ohio, at Mobile, Ala., succeeding **J. I. Gillikin.**

D. M. Lynn has been appointed industrial agent of the Erie, at Cleveland, Ohio.

R. G. DeGuire, city passenger agent of the Denver & Rio Grande Western at San Francisco, Cal., has been promoted to district passenger agent, succeeding **F. L. Wagner,** who has retired from active service.

C. O. Hile has been appointed general agent of the Chicago, Indianapolis & Louisville at Chicago.

H. L. Held has been appointed chief of tariff bureau of the Chicago, Aurora & Elgin.

H. W. Johns, E. M. Dunning and **J. F. Williamson** have been appointed district traffic representatives of the Chicago & North Western at Eugene, Ore., Sacramento, Cal., and Salt Lake City, Utah, respectively.

The Canadian National has announced the following changes in its traffic department, Western region: **F. N. McKenzie,** appointed general passenger agent at Winnipeg, Man.; **W. Hately,**

general freight agent at Vancouver, B. C., promoted to freight traffic manager; **L. A. Fonger,** general freight agent at Winnipeg, advanced to assistant freight traffic manager; **W. A. Whyte,** appointed to succeed Mr. Hately, and **G. N. McMillan,** assistant general freight agent at Winnipeg, promoted to succeed Mr. Fonger. **T. A. Griffin** and **J. S. Stephen** have been appointed district passenger agents, with headquarters at Vancouver and Winnipeg, respectively. **J. J. Raleigh** has been made division freight agent at Vancouver. Appointed district freight agents at Victoria, B. C., and Prince Rupert, respectively, are **P. Lakie** and **R. S. Collinson. E. S. Webster** has been promoted to general agent, passenger department, at Toronto, Ont.

George F. Buckingham, freight traffic manager of the Canadian Pacific at Winnipeg, Man., has been appointed to the new post of assistant general traffic manager, with headquarters at Montreal, Que. **Harry Arkle,** assistant freight traffic manager at Winnipeg, succeeds Mr. Buckingham as freight traffic manager, with supervision over the Prairie and Pacific regions and the United States Pacific Coast agencies.

Edward F. Murphy, who has been acting general agent of the Boston & Maine at Cambridge, Mass., since November, 1948, has been appointed general agent there, succeeding **Leo M. Fallon,** deceased.

MECHANICAL

Herman Stephens Mercer, whose appointment as assistant chief mechanical officer of the Seaboard Air Line, with headquarters at Norfolk, Va., was announced in the *Railway Age* of August 6, was born on November 9, 1902, at Savannah, Ga. Mr. Mercer entered railroad service on October 25, 1919, as machinist apprentice with the Seaboard at Savannah, becoming a machinist there on October 4, 1926. He was appointed roundhouse foreman at Savannah on March 1, 1931, was transferred to Hamlet, N. C., on March 31 of the same year, and on August 16, 1937, was named general foreman at Howells, Ga., transferring to Raleigh, N. C., on February 1, 1940. Mr. Mercer was promoted to master mechanic at Howells on May 27, 1943, and on November 24, 1947, became shop superintendent, locomotive department, at Jacksonville, Fla. He was maintaining that post at the time of his recent promotion.

Herman S. Mercer

John F. Forner has been appointed assistant to superintendent of equipment of the Delaware & Hudson at Albany, N. Y.

Donald McKeown, whose appointment as mechanical engineer of the Boston & Maine, Maine Central and Portland Terminal, with headquarters at North Billerica, Mass., was reported in the *Railway Age* of August 6, was born on April 29, 1901, at Middleboro, Mass. He attended the public and high schools of Somerville, Mass., and Lowell Textile School (evening courses from 1934 to 1942). Mr. McKeown entered railroad service on October 20, 1916, in the engineering department of the B.&M. at Boston, Mass., transferring to the mechanical engineering department there on September 29, 1917. He was appointed stores department material inspector in 1921; assistant pattern supervisor in 1922; draftsman at Boston on May 1, 1923; office engineer at Billerica on October 1, 1927, and assistant engineer at Billerica on March 1, 1933. Mr. McKeown served as assistant mechanical engineer from April 16, 1941, until his recent promotion to mechanical engineer.

PURCHASES & STORES

C. Harry McGill, whose appointment as manager, purchases and stores, of the New York, New Haven & Hartford, with headquarters at New Haven, Conn., was announced in the *Railway Age* for August 6, is a native of Stamford Conn., born on December 21, 1892. He started working for the New Haven as a water boy in the maintenance of way department on July 1, 1910. In 1914 he was appointed assistant work train foreman, and was promoted to foreman the following year. In 1916 he entered the purchases and stores department, as supply train foreman. He served in the United States Army during World War I, being commissioned a captain of a railroad battalion. On his return to the New Haven he became supply train storekeeper, being promoted to traveling storekeeper in 1930, to assistant general storekeeper in 1941, and, on January 1, 1944, to general storekeeper at New Haven, which position he was holding at the time of his recent promotion.

C. Harry McGill

ENGINEERING & SIGNALING

O. W. Stephens, assistant engineer structures of the Delaware & Hudson, with headquarters at Albany, N. Y., has been appointed assistant to chief engineer—maintenance.

R. S. Belcher, manager treating plants, system, of the Atchison, Topeka & Santa Fe, at Topeka, Kan., has, at his own request, been relieved of his duties. He has been succeeded by **D. L. Murray.**

SPECIAL

Dr. J. K. Stack has been appointed chief surgeon of the Chicago & North Western, at Chicago.

Joseph M. Shanaphy, executive representative of the Railway Express Agency, has been appointed manager, safety department, with headquarters as before at New York.

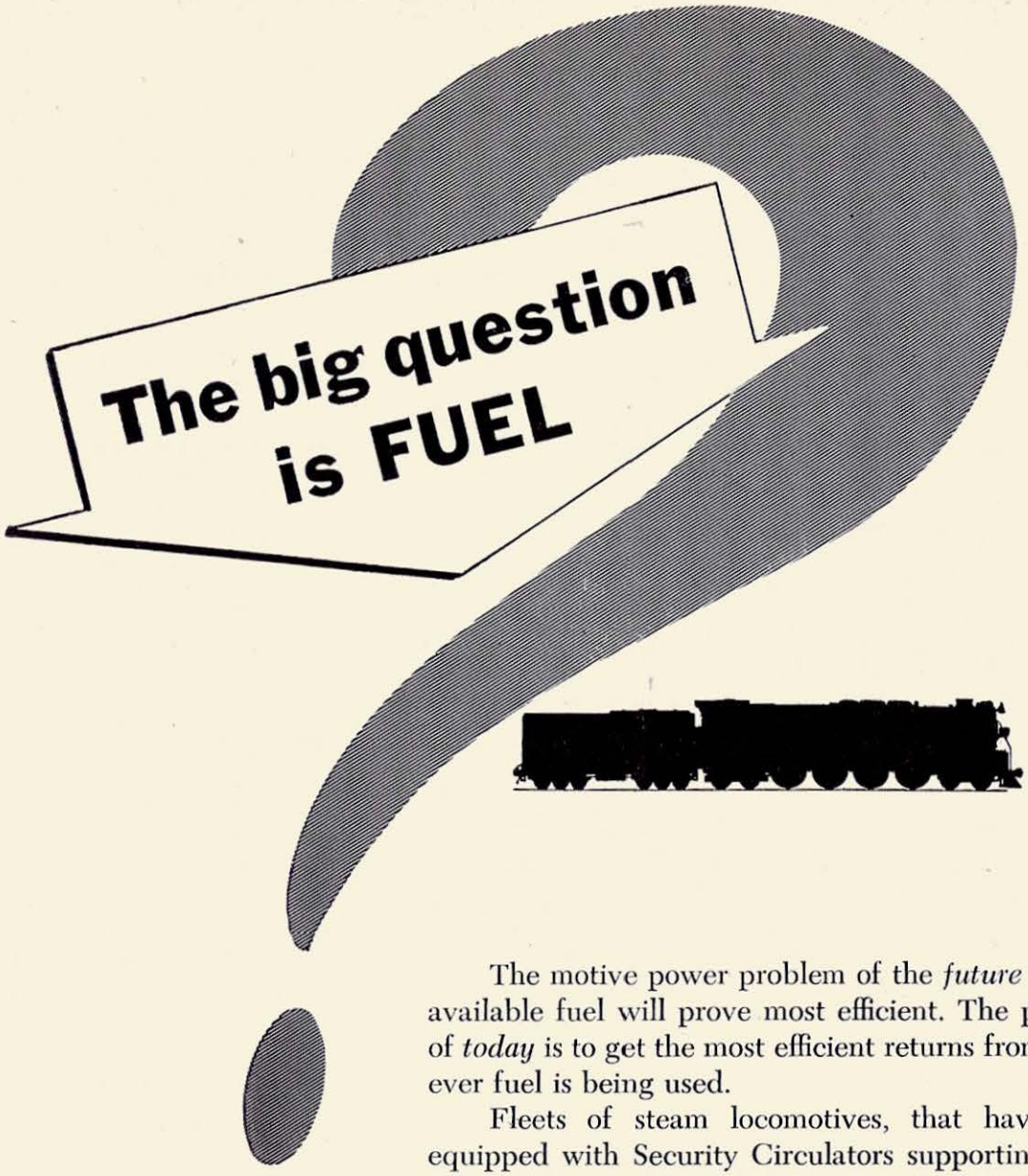
Dr. J. Robertson Knowles has been appointed chief surgeon of the Boston & Maine at Boston, Mass., succeeding **Dr. Robert J. Graves** of Concord, N. H., who has retired.

OBITUARY

E. M. Claypool, who served as assistant in public relations for the Illinois Central at Chicago until December, 1948, and more recently headed a public relations firm bearing his name, died in Michael Reese Hospital at Chicago on August 14, following a heart attack. Mr. Claypool, 57, was born at Montesano, Wash., and attended Wesleyan University at Middletown, Conn. Early in his career he was employed by various midwestern newspapers, and was engaged in public relations and promotion work. He joined the public relations department of the I. C. in 1934, continuing with that company until his resignation to enter business for himself.

A. W. Heintz, auditor of freight accounts, Elgin, Joliet & Eastern, at Chicago, died recently.

George O. Brophy, retired public relations representative of the Union Pacific, died on August 15 at his home in Omaha, Neb., following a long illness.



The motive power problem of the *future* is what available fuel will prove most efficient. The problem of *today* is to get the most efficient returns from whatever fuel is being used.

Fleets of steam locomotives, that have been equipped with Security Circulators supporting properly proportioned brick arches, show definite gains in performance in relation to the fuel consumed. Such installations have been made by fifty railroads, in twenty-five different types of locomotives.

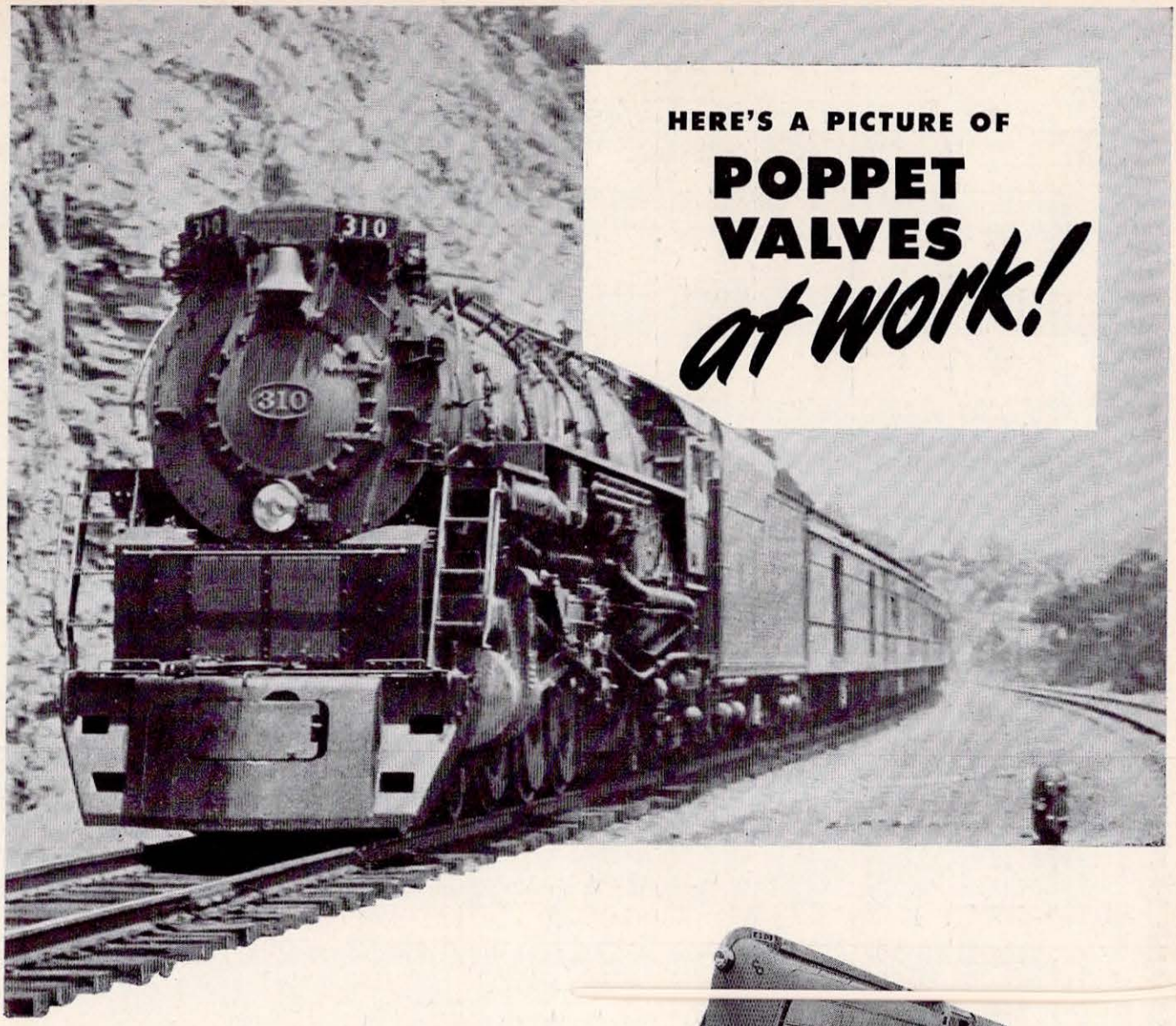
Many other existing locomotives could be continued in profitable service if equipped with Security Circulators to improve their operation.

* * *

The Security Dutch Oven, recently developed and introduced by the American Arch Company, has already been installed in over two hundred oil-burning steam locomotives, to increase efficiency of combustion and aid in improving steaming qualities.

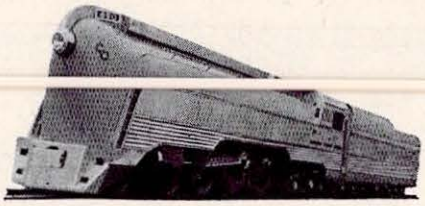
American Arch Company Inc.

NEW YORK • CHICAGO

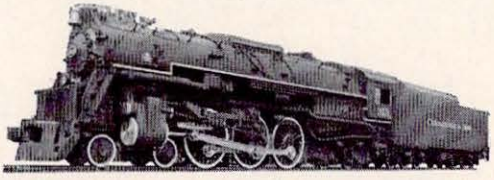


This is C&O's No. 310 with "The Sportsman" — one of 10 locomotives on this road equipped with the Franklin System of Steam Distribution and poppet valves.

Poppet valves, and the associated improvements, will raise the operating efficiency of any locomotive. They will enable a locomotive, modernized or new, to handle more tons — faster — with less fuel and lower maintenance.



This is one of C&O's five completely rebuilt 4-6-4's. Modernization included application of Boosters® and the Franklin System of Steam Distribution. These locomotives have 24 to 36 months of service behind them.



This is one of C&O's five new 4-6-4's built with Boosters® and the Franklin System of Steam Distribution, as initial equipment.

FRANKLIN RAILWAY SUPPLY COMPANY

A CORPORATION

NEW YORK • CHICAGO • MONTREAL

STEAM DISTRIBUTION SYSTEM • BOOSTER • RADIAL BUFFER • COMPENSATOR AND SNUBBER • POWER REVERSE GEARS
FIRE DOORS • DRIVING BOX LUBRICATORS • OVERFIRE JETS • JOURNAL BOXES • FLEXIBLE JOINTS • CAR CONNECTION

REVENUES AND EXPENSES OF RAILWAYS

MONTH OF JUNE AND SIX MONTHS OF CALENDAR YEAR 1949

Name of road		Av. mileage operated during period	Operating revenues			Operating Expenses					Operating ratio	Net from railway operation	Railway tax accruals	Net railway operating income	
						Maintenance of									
			Freight	Passenger	Total (inc. misc.)	Way and structures	Equipment	Traffic	Transportation	Total				1949	1948
Akron, Canton & Youngstown	June	171	365,200	49	378,834	79,058	44,049	28,919	121,612	297,948	78.6	80,886	35,167	34,111	79,675
	6 mos.	171	2,386,890	326	2,483,599	451,020	285,062	170,136	740,878	1,810,855	72.9	672,744	268,114	317,652	544,971
Atchison, Topeka & Santa Fe System	June	13,103	36,633,717	4,568,636	44,985,458	7,326,834	7,740,156	981,809	13,672,219	31,444,525	69.9	13,540,933	6,271,048	6,203,310	7,387,064
	6 mos.	13,103	191,116,607	24,016,238	236,419,791	39,445,908	47,991,173	5,803,216	82,473,888	186,242,180	78.8	50,177,611	26,481,185	21,957,248	28,223,145
Atlanta & St. Andrews Bay	June	82	120,035	2,004	126,711	22,056	11,415	6,862	39,408	91,003	71.8	35,708	14,773	10,315	40,576
	6 mos.	82	895,252	8,262	942,613	165,152	88,154	41,009	259,536	622,836	66.1	319,777	125,489	115,802	235,682
Atlanta & West Point	June	93	240,960	39,616	314,196	44,615	45,651	13,515	157,334	283,938	90.4	30,258	16,886	—7,096	15,705
	6 mos.	93	1,498,773	268,718	1,998,657	241,149	299,989	86,933	1,013,594	1,781,295	89.1	217,362	126,815	—8,850	105,369
Western of Alabama	June	133	233,377	37,920	297,531	39,640	50,472	14,082	140,782	265,528	89.2	32,003	24,859	8,193	34,175
	6 mos.	133	1,540,435	264,803	1,981,618	259,307	332,664	86,955	902,119	1,708,091	86.2	273,527	182,585	101,363	225,534
Atlantic Coast Line	June	5,562	7,505,161	1,091,526	9,305,841	1,746,547	2,008,497	299,996	4,116,240	8,634,043	92.8	671,798	700,000	—142,000	431,924
	6 mos.	5,562	52,323,309	10,415,104	67,580,285	10,011,689	12,303,038	1,846,748	27,931,155	55,269,934	81.8	12,310,351	6,500,000	4,373,928	5,634,247
Charleston & Western Carolina	June	343	748,928	2,088	359,805	85,714	80,243	16,658	158,462	354,827	98.6	4,978	25,000	—34,939	30,588
	6 mos.	343	2,386,845	16,484	2,461,952	490,695	473,326	95,252	1,046,923	2,175,711	88.4	286,241	165,000	48,419	198,314
Baltimore & Ohio	June	6,202	27,696,858	2,094,379	31,664,518	4,222,563	6,499,958	773,085	12,745,732	25,651,266	81.0	6,013,252	2,631,891	2,452,477	5,889,341
	6 mos.	6,202	169,046,013	10,985,115	190,286,457	23,251,812	37,703,397	4,409,326	78,831,648	152,476,376	80.1	37,810,081	16,638,114	17,515,680	20,281,849
Staten Island Rapid Transit	June	29	192,094	56,973	253,628	38,190	38,507	1,611	123,620	236,116	93.1	17,512	32,125	—30,161	—10,885
	6 mos.	29	1,091,943	330,841	1,450,575	251,456	239,857	10,437	754,155	1,444,671	99.6	5,904	202,896	—287,145	—266,887
Bangor & Aroostook	June	602	588,828	35,606	656,562	265,310	187,904	10,599	183,795	692,244	105.4	—35,682	3,696	—3,482	63,601
	6 mos.	602	8,258,574	208,919	8,656,199	1,575,003	1,121,313	70,130	2,009,150	5,059,823	58.4	3,596,376	1,600,532	1,901,714	1,889,942
Bessemer & Lake Erie	June	214	2,656,442	1,011	2,669,925	210,358	810,360	18,621	552,378	1,666,493	62.4	1,003,432	490,219	647,733	1,225,823
	6 mos.	214	11,545,976	6,685	11,668,019	1,183,907	3,757,470	104,725	2,752,837	8,246,618	70.7	3,421,401	1,941,606	2,501,345	3,298,525
Boston & Maine	June	1,757	4,774,376	1,139,188	6,549,427	1,163,933	1,129,780	90,694	2,788,226	5,470,020	83.5	1,079,407	521,281	344,580	1,330,954
	6 mos.	1,757	31,633,091	6,314,621	41,558,331	6,595,850	6,735,135	617,232	17,916,816	33,699,258	81.1	7,859,073	3,529,098	2,607,994	3,270,984
Burlington-Rock Island	June	228	432,165	55,781	511,578	60,336	57,476	4,571	162,598	305,329	59.7	206,249	10,156	105,794	178,684
	6 mos.	228	2,161,319	298,831	2,590,380	338,541	259,404	29,409	984,249	1,738,931	67.1	851,449	57,369	405,615	333,872
Cambria & Indiana	June	35	91,763	.....	91,816	16,420	74,722	787	19,176	121,646	132.5	—29,830	33,638	40,403	45,159
	6 mos.	35	784,878	.....	785,143	89,385	450,325	5,278	146,732	748,515	95.3	36,628	285,929	358,211	151,076
Canadian Pacific Lines in Maine	June	234	239,899	46,555	313,874	180,231	73,785	7,124	133,035	406,729	129.6	—92,855	25,962	—163,430	—71,954
	6 mos.	234	3,161,347	249,825	3,564,933	634,944	538,951	42,545	1,308,613	2,605,229	73.1	959,704	153,750	380,362	312,830
Canadian Pacific Lines in Vermont	June	90	131,445	10,909	159,088	56,208	20,992	5,073	115,941	206,059	129.5	—46,971	15,080	—99,827	—101,846
	6 mos.	90	824,944	85,027	1,009,116	254,029	219,716	32,262	861,760	1,415,878	140.3	—406,762	81,291	—708,418	—667,223
Central of Georgia	June	1,815	2,239,590	207,092	2,665,051	479,723	475,538	110,685	1,340,941	2,568,909	96.4	96,142	205,699	—120,514	255,992
	6 mos.	1,815	14,815,768	1,438,601	17,732,389	2,866,247	2,938,422	660,348	8,588,100	16,093,065	90.8	1,639,324	1,248,275	178,745	974,646
Central of New Jersey	June	415	2,449,118	537,479	3,184,131	536,619	508,549	53,369	1,546,656	2,823,201	88.7	360,930	381,087	—279,853	—87,247
	6 mos.	415	14,677,559	3,063,861	18,931,718	2,912,134	3,419,435	321,531	9,702,578	17,443,795	92.1	1,487,923	2,337,232	—2,471,735	—2,324,840
Central of Pennsylvania	June	212	1,496,532	15,375	1,544,274	177,997	268,430	24,591	453,025	966,954	62.6	577,320	65,524	776,069	1,156,051
	6 mos.	212	8,745,271	91,702	9,049,617	970,949	1,619,425	142,672	2,792,109	5,788,093	64.0	3,261,524	384,175	4,415,216	4,924,758
Central Vermont	June	422	671,000	56,000	786,000	187,165	113,795	16,489	297,196	647,752	82.4	136,248	44,530	50,250	214,143
	6 mos.	422	4,085,000	345,000	4,739,000	875,348	899,051	93,039	2,038,152	4,137,532	87.3	601,468	292,240	47,855	480,475
Chesapeake & Ohio	June	5,114	23,408,103	932,164	25,751,405	4,019,307	5,661,481	534,947	8,575,494	20,013,557	77.7	5,737,848	2,921,065	2,964,526	6,563,204
	6 mos.	5,103	143,593,052	4,878,609	155,194,272	21,158,399	30,473,757	3,357,890	53,428,025	115,361,814	74.3	39,832,458	19,363,911	21,449,807	19,343,171
Chicago & Eastern Illinois	June	909	1,700,550	263,855	2,192,883	329,629	427,399	94,428	939,518	1,931,432	88.1	261,451	115,600	21,445	260,548
	6 mos.	909	11,214,733	1,745,457	14,315,617	2,060,633	2,842,867	640,801	6,155,682	12,596,055	88.0	1,719,562	742,218	357,433	1,045,493
Chicago & Illinois Midland	June	131	640,558	812	657,765	89,456	127,248	24,497	174,725	449,879	68.4	207,886	86,051	107,497	234,028
	6 mos.	131	4,247,024	4,979	4,352,229	501,341	836,562	154,831	1,189,685	2,889,076	66.4	1,463,153	585,204	784,206	871,131
Chicago & North Western	June	8,076	10,909,879	2,282,760	14,746,599	2,501,324	2,969,404	330,488	6,571,705	13,159,371	89.2	1,587,228	990,788	486,189	2,951,020
	6 mos.	8,076	63,570,294	10,519,245	82,918,922	14,384,704	18,766,568	1,864,658	41,806,200	81,442,066	98.2	1,476,856	6,125,414	—4,886,294	2,926,121
Chicago, Burlington & Quincy	June	8,714	14,132,929	1,757,935	17,581,080	4,130,973	3,482,328	386,570	6,091,012	14,805,952	84.2	2,775,128	1,650,441	881,732	2,504,618
	6 mos.	8,714	85,054,426	8,220,270	103,051,035	18,307,976	19,854,842	2,699,927	38,930,137	84,062,960	81.6	18,988,075	10,562,450	6,345,742	14,264,197
Chicago Great Western	June	1,500	2,288,079	15,899	2,462,314	622,626	278,526	103,383	662,949	1,945,035	79.0	517,279	147,615	171,964	377,817
	6 mos.	1,500	14,476,967	190,410	15,651,659	3,048,623	1,832,356	636,675	6,023,638	12,011,832	76.7	3,639,827	1,207,729	1,178,238	1,663,729
Chicago, Indianapolis & Louisville	June	541	1,249,817	81,382	1,438,440	253,454	250,214	74,896	532,287	1,194,853	83.1	243,587	79,311	93,149	222,700
	6 mos.	541	7,684,967	553,008	8,808,793	1,502,836	1,565,509	474,453	3,477,217	7,560,429	85.8	1,248,364	471,694	317,467	995,607
Chicago, Milwaukee, St. Paul & Pacific	June	10,670	16,829,267	2,039,410	20,866,810	4,086,202	3,638,224	438,929	8,158,908	17,216,109	82.5	3,650,701	1,417,000	1,797,728	2,079,729
	6 mos.	10,670	94,388,853	9,142,964	114,562,261	19,107,430	23,574,016	2,554,170	51,967,579	102,630,108	89.6	11,932,153	8,354,000	1,153,549	4,261,133
Chicago, Rock Island & Pacific	June	7,602	13,287,854	1,968,751	16,466,962	2,485,490	2,543,753	458,907	5,423,029	11,627,148	70.6	4,839,814	2,081,932	2,071,338	2,586,565
	6 mos.	7,623	72,449,149	10,580,081	89,546,851	11,432,011	14,805,479	2,750,329	34,187,611	67,429,442	75.3	22,117,409	9,888,478	8,088,558	8,388,489
Chicago, St. Paul, Minn. & Omaha	June	1,617	1,884,573	227,809	2,339,269	419,883	456,532	58,491	1,208,553	2,263,478	96.8	75,791	170,341	—181,956	201,716
	6 mos.	1,617	12,152,088	1,150,672	14,482,571	2,293,641	2,799,371	341,187	7,677,774	13,821,324	95.4	661,247	1,062,021	—924,652	—280,291
Clinchfield	June	317	1,424,148	4,866	1,441,516	239,343	296,633	33,687	353,321	951,555	66.0	489,961	156,363	455,575	719,212
	6 mos.	317	8,710,129	26,448	8,809,492	1,098,625	1,775,579	201,880	2,463,012	5,719,527	64.9	3,089,965	940,566	2,568,612	3,508,950
Colorado & Southern	June	744	882,348	70,311	1,035,229	193,802	175,843	24,518	389,896	837,491	80.9	197,738	104,865	58,093	49,560
	6 mos.	745	5,413,202	424,621	6,327,106	898,999	1,182,294	150,117	2,583,787	5,118,450	80.9	1,208,656	606,143	352,134	355,746
Ft. Worth & Denver City	June	902	1,402,350	119,143	1,625,990	210,555	176,613	47,115	522,106	1,030,326	63.4	595,664	201,023	296,570	380,605
	6 mos.	902	6,098,137	690,183	7,359,581	1,198,392	1,077,858	257,143	2,733,829	5,697,554	77.4	1,662,027	560,990	764,086	864,238

REVENUES AND EXPENSES OF RAILWAYS

MONTH OF JUNE AND SIX MONTHS OF CALENDAR YEAR 1949

Name of road		Av. mileage operated during period	Operating revenues			Operating Expenses					Operating ratio	Net from railway operation	Railway tax accruals	Net railway operating income	
						Maintenance of									
			Freight	Passenger	Total (inc. misc.)	Way and structures	Equip-ment	Traffic	Trans-portation	Total				1949	1948
Colorado & Wyoming	June	41	107,626	.....	182,414	26,056	27,175	1,006	74,593	137,692	75.4	44,722	30,374	14,779	114,256
	6 mos.	41	813,249	.....	1,333,661	90,016	148,203	5,820	520,860	817,316	61.2	516,345	269,032	247,922	371,408
Columbus & Greenville	June	168	151,937	—45	157,299	43,901	34,084	4,634	45,356	144,149	91.6	13,150	12,340	2,996	5,364
	6 mos.	168	920,455	—10	956,893	219,819	168,076	27,333	270,267	787,838	82.3	169,055	107,295	77,672	101,967
Delaware & Hudson	June	794	3,687,639	163,278	3,977,238	735,155	827,473	77,526	1,631,232	3,443,571	86.6	533,667	327,743	226,072	830,182
	6 mos.	794	23,930,609	1,007,764	25,597,320	3,779,403	5,731,523	430,841	10,510,489	21,504,254	84.0	4,093,066	2,228,118	1,755,958	3,398,196
Delaware, Lackawanna & Western	June	968	5,423,521	812,538	6,828,678	1,013,779	1,202,975	148,004	3,055,395	5,655,235	82.8	1,173,443	604,068	501,766	1,255,517
	6 mos.	969	33,354,934	4,902,652	41,445,405	5,658,772	7,558,033	905,484	18,723,139	34,262,275	82.7	7,183,130	3,775,412	3,208,292	4,664,297
Denver & Rio Grande Western	June	2,413	4,587,313	298,744	5,150,596	1,075,594	1,025,407	154,841	1,806,822	4,328,674	84.0	821,922	415,420	455,690	1,228,643
	6 mos.	2,437	29,670,652	1,530,406	32,766,730	4,717,457	6,290,738	950,198	11,971,074	25,541,974	78.0	7,224,756	3,346,349	3,917,881	6,167,128
Detroit & Mackinac	June	232	149,307	563	158,727	31,500	21,577	2,369	32,515	97,020	61.1	61,707	23,855	39,625	67,380
	6 mos.	232	820,421	4,625	884,968	189,000	144,133	12,351	201,487	594,535	67.1	290,433	118,863	170,284	284,524
Detroit & Toledo Shore Line	June	50	453,664	.....	455,848	70,978	45,051	14,235	159,375	300,468	65.9	155,380	45,424	40,746	77,518
	6 mos.	50	3,267,470	.....	3,282,671	305,323	270,304	79,986	991,196	1,716,967	52.3	1,565,704	493,659	569,127	567,451
Detroit, Toledo & Ironton	June	464	1,070,449	692	1,138,121	174,110	304,374	24,527	322,984	860,505	75.6	277,616	114,604	107,620	277,353
	6 mos.	464	7,689,606	3,673	7,991,967	961,183	1,431,818	148,580	2,038,900	4,804,256	60.1	3,187,711	1,218,373	1,640,157	1,529,111
Duluth, Missabe & Iron Range	June	574	5,294,808	8,741	6,257,000	688 381	586,290	8,608	1,439,322	2,786,352	44.5	3,470,648	1,706,066	1,785,391	2,108,515
	6 mos.	575	16,419,544	22,450	19,238,005	3,649,601	3,153,600	49,880	5,723,860	12,951,110	67.3	6,286,895	3,293,057	2,943,077	2,899,245
Duluth, Winnipeg & Pacific	June	175	238,000	4,600	248,000	85,383	48,740	4,313	113,155	257,526	103.8	—9,526	21,999	—52,440	5,466
	6 mos.	175	1,604,000	13,900	1,639,700	393,424	287,773	25,325	776,669	1,519,116	92.6	120,584	136,426	—196,173	134,890
Elgin, Joliet & Eastern	June	238	3,204,809	2	3,861,810	406,725	785,049	29,219	1,364,929	2,707,580	70.1	1,154,230	494,309	434,619	1,029,560
	6 mos.	238	20,403,731	20	24,395,370	1,729,834	3,683,914	170,638	8,169,947	14,433,692	59.2	9,961,678	3,857,900	4,331,900	3,653,457
Erie	June	2,231	10,879,533	657,552	12,610,919	2,234,543	2,273,568	313,776	5,206,816	10,595,743	84.0	2,015,176	993,309	679,222	1,711,602
	6 mos.	2,230	67,088,282	3,694,359	75,805,525	10,429,307	14,186,692	1,928,905	31,785,711	62,106,980	81.9	13,698,545	6,565,027	5,292,737	8,623,938
Florida East Coast	June	575	968,616	355,222	1,443,189	413,913	388,284	63,142	659,740	1,639,402	113.6	—196,213	119,062	—399,638	22,082
	6 mos.	575	10,107,411	4,110,385	15,576,955	2,338,939	2,466,919	393,904	5,709,472	12,014,238	77.1	3,562,717	1,472,852	1,289,227	2,147,488
Georgia Railroad	June	326	573,579	23,003	634,507	102,893	93,560	28,550	302,738	557,898	87.9	76,609	34,112	52,735	106,889
	6 mos.	326	3,624,952	175,047	4,050,452	626,958	595,244	175,324	1,970,373	3,551,552	87.7	498,900	208,248	383,566	582,260
Georgia & Florida	June	408	272,205	—28	274,871	57,665	38,638	16,024	110,073	232,653	84.6	42,218	15,967	7,667	1,484
	6 mos.	408	1,381,389	965	1,401,167	440,887	223,392	93,828	610,084	1,436,420	102.5	—35,253	95,842	—224,585	—92,237
Grand Trunk Western	June	971	3,508,000	194,000	3,975,000	825,650	664,069	67,209	1,691,490	3,402,864	85.6	572,136	256,464	203,960	661,387
	6 mos.	971	20,780,000	1,061,000	23,526,000	3,925,490	4,153,270	385,754	10,545,285	19,928,791	84.7	3,597,209	1,463,613	1,570,908	1,300,600
Canadian Natl. Lines in New Engl.	June	172	113,000	8,500	131,000	79,166	34,076	2,893	106,793	230,569	176.0	—99,569	22,576	—146,591	—111,596
	6 mos.	172	828,000	39,000	1,009,000	373,896	287,717	17,227	737,529	1,486,479	147.3	—477,479	135,456	—787,915	—637,461
Great Northern	June	8,318	17,153,541	1,235,347	20,032,593	4,397,179	2,840,700	347,026	6,084,494	14,312,323	71.4	5,720,270	2,138,858	3,470,659	2,576,692
	6 mos.	8,318	83,644,925	5,493,010	96,933,968	20,591,950	18,104,164	2,120,368	37,686,505	82,258,594	84.9	14,675,374	9,175,124	4,037,075	7,421,227
Green Bay & Western	June	224	290,156	.....	295,755	116,824	24,977	18,114	88,196	260,770	88.2	34,985	18,972	—2,004	25,481
	6 mos.	224	1,689,298	.....	1,732,119	453,076	189,348	111,019	560,487	1,390,225	80.3	341,894	169,363	81,153	155,488
Gulf, Mobile & Ohio	June	2,901	4,799,702	483,162	5,685,770	1,029,008	965,823	225,524	1,923,896	4,436,601	78.0	1,249,169	541,603	495,135	1,028,607
	6 mos.	2,901	30,996,400	2,661,720	36,205,516	6,376,500	6,402,936	1,345,689	12,009,552	27,958,593	77.2	8,246,923	3,397,335	3,274,329	4,058,155
Illinois Central	June	6,544	16,004,054	2,058,249	20,357,315	4,216,738	3,887,458	444,969	7,344,406	16,801,092	82.5	3,556,223	2,102,379	1,481,837	2,981,592
	6 mos.	6,549	100,669,473	12,157,971	125,943,151	21,719,173	22,656,575	2,700,120	46,870,004	99,527,949	79.0	26,415,202	14,183,589	11,395,375	13,564,533
Illinois Terminal	June	474	762,923	112,633	987,282	164,183	147,344	37,861	380,897	780,005	79.0	207,277	106,305	97,208	185,424
	6 mos.	474	4,579,746	669,117	5,831,275	915,235	820,164	220,998	2,335,816	4,561,913	78.2	1,269,362	641,626	605,534	907,902
Kansas City Southern	June	891	2,691,421	119,980	3,076,514	273,158	391,278	91,994	928,707	1,806,601	58.7	1,269,913	418,000	667,402	856,774
	6 mos.	891	17,841,311	567,639	19,889,058	1,729,518	2,355,251	565,756	5,740,710	11,167,551	56.2	8,721,507	3,043,000	4,570,664	4,760,303
Kansas, Oklahoma & Gulf	June	328	425,148	689	428,470	67,538	33,196	16,514	122,157	259,904	60.7	168,566	75,876	67,971	107,279
	6 mos.	328	2,798,975	4,420	2,824,177	344,685	223,633	101,642	757,042	1,544,636	54.7	1,279,541	558,053	539,043	507,200
Lake Superior & Ishpeming	June	156	523,336	197	643,657	58,838	44,732	1,629	100,316	214,632	33.3	429,025	181,585	248,560	186,960
	6 mos.	156	1,462,192	437	1,755,759	281,611	298,245	11,031	422,356	1,069,167	60.1	686,592	379,566	329,278	245,747
Lehigh & Hudson River	June	96	239,682	.....	240,085	45,856	33,098	8,787	89,188	184,710	76.9	55,375	21,605	12,340	34,129
	6 mos.	96	1,446,392	.....	1,450,003	213,833	230,514	54,803	568,071	1,122,938	77.4	327,965	136,669	68,394	158,748
Lehigh & New England	June	191	662,262	.....	668,645	131,076	102,306	11,056	167,208	441,265	66.0	227,380	108,524	136,931	273,872
	6 mos.	191	3,510,460	.....	3,545,712	677,481	643,228	66,261	1,016,267	2,590,229	73.1	955,483	502,942	597,187	851,607
Lehigh Valley	June	1,252	5,210,495	311,994	5,819,964	981,398	946,314	141,940	2,459,697	4,780,949	82.1	1,039,015	393,268	489,787	1,331,742
	6 mos.	1,252	31,587,290	1,971,919	35,279,796	5,016,282	5,984,415	846,915	15,537,610	28,884,109	81.9	6,395,687	2,437,745	3,010,989	3,321,931
Louisiana & Arkansas	June	756	1,335,500	63,200	1,470,272	157,884	176,917	53,658	498,137	945,376	64.3	524,896	211,837	257,698	339,365
	6 mos.	756	8,403,011	365,983	9,159,922	1,161,644	1,084,896	311,466	2,993,459	5,891,775	64.3	3,268,147	1,282,984	1,565,997	1,689,286
Louisville & Nashville	June	4,775	12,845,364	1,153,890	14,941,791	2,503,586	3,398,286	300,861	6,147,625	12,928,684	86.5	2,013,107	1,652,682	1,022,681	2,719,153
	6 mos.	4,773	81,204,926	6,888,598	93,733,848	13,938,699	20,673,326	1,833,240	38,966,694	78,936,157	84.2	14,797,691	10,162,174	7,638,482	8,675,686

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REVENUES AND EXPENSES OF RAILWAYS

MONTH OF JUNE AND SIX MONTHS OF CALENDAR YEAR 1949

Name of road		Av. mileage operated during period	Operating revenues			Operating Expenses					Operating ratio	Net from railway operation	Railway tax accruals	Net railway operating income	
						Maintenance of									
			Freight	Passenger	Total (inc. misc.)	Way and structures	Equip-ment	Traffic	Trans-portation	Total				1949	1948
Maine Central	June	981	1,415,765	182,686	1,734,470	382,276	407,799	18,497	634,227	1,518,770	87.6	215,700	117,129	96,092	285,713
	6 mos.	981	11,432,618	854,932	13,026,818	2,141,327	2,605,963	112,136	4,414,670	9,685,902	74.4	3,340,916	1,658,457	1,360,069	1,341,316
Midland Valley	June	334	153,791	8	156,478	44,779	22,431	3,435	52,963	130,283	83.3	26,195	13,768	8,503	9,557
	6 mos.	334	898,049	53	917,390	229,892	114,780	21,982	323,733	731,241	79.7	186,146	92,415	45,948	107,324
Minneapolis & St. Louis	June	1,421	1,406,422	11,629	1,461,210	353,534	286,355	107,072	492,829	1,345,937	92.1	115,273	91,504	11,123	194,276
	6 mos.	1,421	8,701,942	59,060	9,037,814	1,795,999	1,563,773	648,213	3,225,559	7,796,287	86.3	1,241,527	752,318	410,809	640,999
Minn., St. Paul & S. Ste. Marie	June	3,224	2,980,139	134,845	3,309,342	699,510	477,123	66,943	1,186,603	2,537,746	76.7	771,596	216,626	504,454	460,202
	6 mos.	3,224	14,058,204	531,773	15,563,360	3,455,795	2,993,023	383,846	7,049,792	14,498,731	93.2	1,064,629	1,154,693	—343,614	—874,140
Duluth, South Shore & Atlantic	June	530	399,430	17,442	449,204	147,814	84,002	17,703	181,508	441,835	98.4	7,369	25,477	—24,431	82,333
	6 mos.	530	2,532,412	67,001	2,739,862	630,582	572,213	108,568	1,215,657	2,592,877	94.6	146,985	142,950	—98,796	339,046
Spokane International	June	152	192,096	1,173	204,634	40,340	20,381	3,935	73,946	146,618	71.7	58,016	12,199	29,997	—33,058
	6 mos.	152	935,857	7,714	1,013,813	249,176	108,844	23,947	409,135	843,240	83.2	170,573	67,699	27,838	21,490
Mississippi Central	June	148	178,373	27	182,364	59,232	22,419	12,236	46,188	148,751	81.6	33,613	13,463	7,897	40,743
	6 mos.	148	1,118,531	120	1,145,401	319,406	133,069	74,916	295,282	877,714	76.6	267,687	110,241	69,764	139,616
Missouri-Illinois	June	172	345,232	308	347,130	73,047	48,225	6,324	97,082	229,914	66.2	117,216	31,900	72,100	129,030
	6 mos.	172	2,123,791	1,318	2,136,779	376,002	284,413	41,661	581,955	1,321,248	61.8	815,531	291,638	478,025	535,505
Missouri-Kansas-Texas Lines	June	3,253	5,024,042	394,212	5,900,045	840,731	925,935	223,989	2,269,271	4,563,008	77.3	1,337,037	537,478	452,098	1,182,518
	6 mos.	3,253	32,051,125	2,209,931	37,015,350	5,521,853	5,443,882	1,328,849	14,550,573	28,574,476	77.2	8,440,874	3,293,557	2,821,551	3,592,743
Missouri Pacific	June	7,004	13,924,664	1,027,351	16,486,953	2,919,023	2,867,253	383,680	6,353,154	13,076,390	79.3	3,410,563	1,181,779	1,556,577	2,993,451
	6 mos.	7,006	84,800,591	5,906,248	99,395,282	15,629,150	17,373,720	2,452,123	39,614,206	78,534,414	79.0	20,860,868	7,140,889	10,114,246	10,822,555
Gulf Coast Lines	June	1,711	2,800,992	105,764	3,089,287	515,860	384,895	86,594	1,075,040	2,185,839	70.8	903,448	242,753	419,064	494,609
	6 mos.	1,714	18,894,697	568,999	20,464,812	3,488,650	2,445,328	493,943	6,831,529	13,998,159	68.4	6,466,653	1,933,882	3,067,586	4,598,024
International-Great Northern	June	1,110	2,236,551	215,915	2,703,482	444,437	404,529	51,017	1,085,837	2,093,429	77.4	610,053	171,159	309,200	423,642
	6 mos.	1,110	13,194,100	1,029,143	15,781,843	2,689,912	2,423,203	313,121	6,788,720	12,854,743	81.5	2,927,100	729,361	1,369,879	474,432
Monongahela	June	170	552,069	1,107	558,999	76,614	56,887	932	189,838	333,475	59.7	225,524	74,871	49,213	202,829
	6 mos.	170	3,781,056	6,183	3,815,298	498,882	406,158	6,215	1,239,908	2,195,737	57.6	1,619,561	454,733	446,919	663,360
Montour	June	51	234,726	.....	238,116	44,346	56,990	795	63,705	176,246	74.0	61,870	55,279	66,295	90,674
	6 mos.	51	1,537,657	.....	1,546,662	146,512	455,439	4,999	476,849	1,149,460	74.3	397,202	332,483	389,788	401,025
Nashville, Chatt. & St. Louis	June	1,051	2,198,788	180,975	2,669,016	554,090	520,162	107,632	1,085,509	2,378,770	89.1	290,246	179,781	127,300	297,353
	6 mos.	1,051	13,722,463	1,110,746	16,392,121	2,728,110	2,318,659	642,054	6,836,950	13,228,188	80.7	3,163,933	1,657,464	1,465,618	1,374,933
New York Central	June	10,731	41,210,423	11,115,267	58,988,490	9,147,736	11,671,637	1,007,451	25,905,131	50,619,109	85.8	8,369,381	4,516,528	2,286,167	9,246,485
	6 mos.	10,731	260,753,486	59,294,600	356,847,141	48,195,871	73,463,818	6,084,676	162,114,865	308,292,557	86.4	48,554,584	26,652,008	13,223,803	12,055,803
Pittsburgh & Lake Erie	June	221	3,231,801	80,040	3,443,996	521,204	1,445,076	69,217	1,042,995	3,259,284	94.6	184,712	386,779	377,485	1,456,971
	6 mos.	221	21,080,569	491,523	22,520,660	2,719,375	6,471,299	403,677	7,623,830	18,345,085	81.5	4,175,575	3,256,812	4,404,196	4,891,529
New York, Chicago & St. Louis	June	1,687	7,208,371	128,405	7,540,424	1,243,678	1,215,481	225,443	2,868,650	5,887,596	78.1	1,652,828	704,672	688,513	1,687,846
	6 mos.	1,687	48,296,606	737,919	50,211,572	6,778,937	8,081,805	1,319,688	17,847,905	35,895,714	71.5	14,315,858	5,699,383	6,698,542	7,844,100
New York, New Haven & Hartford	June	1,798	6,600,503	4,252,692	11,995,138	1,779,327	1,812,744	228,066	4,950,770	9,531,067	79.5	2,464,071	971,000	785,103	2,276,188
	6 mos.	1,798	43,039,666	24,442,712	74,648,651	10,728,292	10,988,998	1,451,104	31,390,411	59,306,489	79.4	15,342,162	6,158,000	4,809,281	4,438,581
New York Connecting	June	21	164,035	.....	177,345	73,744	16,631	.....	55,655	149,452	84.3	27,893	61,408	—2,424	72,311
	6 mos.	21	1,259,511	.....	1,334,928	416,053	137,446	.....	351,746	921,109	69.0	413,819	373,424	172,165	315,552
New York, Ontario & Western	June	544	580,174	9,680	634,725	104,018	97,369	29,367	270,485	530,447	83.6	104,278	39,368	62	—23,872
	6 mos.	544	2,945,967	24,915	3,230,139	558,930	531,118	178,677	1,577,595	3,036,729	94.0	193,410	220,829	—395,672	—754,361
New York, Susquehanna & Western	June	120	347,509	38,966	402,002	47,573	56,916	5,760	156,632	287,455	71.4	114,547	35,182	52,586	66,971
	6 mos.	120	2,006,782	251,588	2,334,249	287,638	330,013	37,465	1,033,138	1,843,790	79.0	490,459	189,576	132,873	177,766
Norfolk & Western	June	2,129	12,281,533	512,363	13,389,293	1,971,336	3,317,836	281,612	4,227,648	10,357,751	77.4	3,031,542	1,908,706	1,903,881	4,395,294
	6 mos.	2,129	79,328,069	2,862,648	85,873,448	11,623,571	19,477,114	1,649,501	26,612,086	62,668,628	73.0	23,204,820	13,291,394	14,380,419	17,949,580
Norfolk Southern	June	683	798,546	.....	825,833	172,715	108,646	46,832	269,341	653,427	79.1	172,406	83,334	67,945	140,959
	6 mos.	683	4,292,047	2,594	4,442,656	860,545	563,510	265,562	1,478,419	3,523,715	79.3	918,941	478,421	317,005	391,253
Northern Pacific	June	6,889	11,381,828	868,607	13,233,362	2,555,200	2,399,567	274,697	4,524,679	10,383,113	78.5	2,850,249	1,146,177	1,944,756	1,750,972
	6 mos.	6,889	60,621,194	3,606,903	69,715,025	14,441,125	14,921,342	1,606,244	27,948,309	62,645,312	89.9	7,069,713	6,837,063	1,813,295	6,185,155
Northwestern Pacific	June	331	705,512	9,091	741,346	190,197	82,948	3,798	330,246	620,922	83.8	120,424	47,576	28,686	104,705
	6 mos.	331	3,643,604	29,699	3,816,640	1,101,834	509,953	27,215	1,902,429	3,622,352	94.9	194,288	231,411	—299,490	123,628
Oklahoma City-Ada-Atoka	June	132	80,682	.....	81,378	25,071	3,511	1,320	20,958	54,631	67.1	26,747	5,218	7,396	14,546
	6 mos.	132	504,096	—19	509,001	122,347	25,248	9,137	132,038	311,076	61.1	197,925	73,479	57,666	52,630
Pennsylvania	June	10,142	51,995,935	12,099,784	70,705,804	10,497,570	15,290,320	1,267,936	31,499,028	61,364,080	86.8	9,341,724	5,281,491	2,540,448	11,513,616
	6 mos.	10,142	339,695,479	76,418,930	456,627,633	58,095,875	98,992,781	7,579,214	203,697,766	386,136,681	84.6	70,490,952	36,838,255	23,838,595	18,097,071
Long Island	June	376	1,220,034	3,200,658	4,589,329	526,867	699,289	15,986	2,165,008	3,521,114	76.7	1,068,215	451,468	350,296	335,700
	6 mos.	376	6,716,116	16,223,502	24,050,979	3,326,521	4,553,529	196,203	13,528,344	22,692,449	94.4	1,358,530	2,748,349	—2,971,657	—3,456,400

Table continued on next left-hand page

GENERAL NEWS

I.C.C. Modifies

(Continued from page 68)

old M.P. secured serial 5¼ per cent bonds, who will receive new general mortgage bonds and preferred stock equal in principal amount to their total claim, plus $250 of new Class A common stock for each $1,000 bond. Holders of N.O.T.&M. common stock will receive for each share $150 of new general mortgage bonds and $25 of new Class A common. Holders of old M.P. preferred stock will receive 3 shares of new Class B common for each 7 shares held.

Distribution of Securities

The distribution of cash and new securities to other creditors will be as follows, the amounts in each instance being the allocation in round numbers for $1,000 principal amount of debt or stock:

M. P. 1st and refunding mortgage 5 per cent bonds, series A—cash, $158; series B 35-year 4 per cent 1st mortgage bonds, $361; series C 50-year 4 per cent 1st mortgage bonds, $361; series A 65-year 4½ per cent general mortgage income bonds, $516.

M. P. 1st and refunding mortgage 5 per cent bonds series F—cash, $157; series B 35-year 4 per cent 1st mortgage bonds, $360; series C 50-year 4 per cent 1st mortgage bonds, $360; series A 65-year 4½ per cent general mortgage income bonds, $515.

M. P. 1st and refunding mortgage 5 per cent bonds, series G—cash, $163; series B 35-year 4 per cent mortgage bonds, $363; series C 50-year 4 per cent 1st mortgage bonds, $363; series A 65-year 4½ per cent general mortgage income bonds, $519.

M. P. 1st and refunding mortgage 5 per cent bonds, series H—cash, $165; series B 35-year 4 per cent 1st mortgage bonds, $364; series C 50-year 4 per cent 1st mortgage bonds, $364; series A 65-year 4½ per cent general mortgage income bonds, $519.

M. P. 1st and refunding mortgage 5 per cent bonds, series I—cash, $158; series B 35-year 4 per cent 1st mortgage bonds, $361; series C 50-year 4 per cent 1st mortgage bonds, $361; series A 65-year 4½ per cent general mortgage income bonds, $516.

M. P. general mortgage 4 per cent bonds—$5 preferred stock, $1,593.

M. P. 5½ per cent convertible bonds—$5 preferred stock, $200; class A common stock, $1,634.

Cairo & Thebes 4 per cent 1st mortgage bonds—cash, $100; series B 35-year 4 per cent 1st mortgage bonds, $360; series C 50-year 4 per cent 1st mortgage bonds, $360; series A 65-year 4½ per cent general mortgage income bonds, $313.

L.R.H.S. & W. 4 per cent 1st mortgage bonds—series B 35-year 4 per cent 1st mortgage bonds, $150; series C 50-year 4 per cent 1st mortgage bonds, $150; series A 65-year 4½ per cent general mortgage income bonds, $1,220

B St. L. & S. 5 per cent 1st mortgage bonds—cash, $50; series B 35-year 4 per cent 1st mortgage bonds, $400; series C 50-year 4 per cent 1st mortgage bonds, $400; series A 65-year 4½ per cent general mortgage income bonds, $796.

Central Branch U. P. 4 per cent 1st mortgage bonds—cash, $61 series B 35-year 4 per cent 1st mortgage bonds, $316; series C 50-year 4 per cent 1st mortgage bonds, $316; series A 65-year 4½ per cent general mortgage income bonds, $630.

N. O. T. & M. 1st mortgage bonds—cash, $15; series A 20-year 4 per cent 1st mortgage bonds, $1,000.

I.-G. N. series A 6 per cent 1st mortgage bonds—cash, $180; series B 35-year 4 per cent 1st mortgage bonds, $65; series C 50-year 4 per cent 1st mortgage bonds, $65; series A 65-year 4½ per cent general mortgage income bonds, $600; series B 75-year 4½ per cent general mortgage income bonds, $601.

I.-G.N. series B and series C 5 per cent 1st mortgage bonds—cash, $150; series B 35-year 4 per cent 1st mortgage bonds, $60; series C 50-year 4 per cent 1st mortgage bonds, $60; series A 65-year 4½ per cent general mortgage income bonds, $577; series B 75-year 4½ per cent general mortgage income bonds, $578.

M. P. general unsecured creditors—Approximately 10 per cent of claims in new preferred stock and the balance in class A common stock.

System preferred claims of general creditors—cash in full.

The 1948 plan was accompanied by a concurring-in-part expression by Commissioner Splawn and by a dissenting opinion by Commissioner Alldredge, who noted that Commissioner Aitchison joins in his expression. Commissioner Cross did not participate. Dr. Splawn expressed a preference for a separate reorganization of the Missouri Pacific, New Orleans, Texas & Mexico, and International-Great Northern. "It is not clear that the economies expected from a single operating company are other than conjectural," he said. "These economies should be spelled out as more definitely to be expected before an irrevocable consolidation of the properties under the Bankruptcy Act is undertaken. It seems to me that some of the difficult questions of equitable treatment as between security holders of the New Orleans, Texas & Mexico and of other companies in the system could have been avoided" by arranging to continue the N.O.T. & M. in the system as a subsidiary company. The provisions in the Texas constitution and laws barring intrastate operations of foreign carriers, in his opinion, make a separate I.-G.N. preferable to the "somewhat labored attempt" of the commission's majority to meet this situation.

Dissenters More Liberal

Commissioner Alldredge's dissent was based upon his argument that the majority was "overly conservative in its estimate of future earnings of the Missouri Pacific system, particularly if weight is given to the substantial improvement in the main component of the system. This conservatism," he said, "may be attributable to the fact that conditions which have enabled favorable earnings to continue since the close of the war have not yet had an opportunity to demonstrate clearly the extent and permanency of the improvement over the disastrous prewar earnings record of this system." He would add to the new capitalization a "conditional increase" of $155,000,000, to become final only if the earnings available for interest continue for an additional 3-year period to average not less than $34,500,000, approximately the average for the three years 1946-48. The conditional increase would be evidenced by purchase warrants for new Class B common stock, and would be issued to holders of old preferred and common. "Under such a plan the present common stockholders would be able to participate to a reasonable extent in the new issue of securities after the legitimate claims of the preferred stockholders have been fully satisfied," he observed.

The majority had held that organization of a separate company to meet the requirements of Texas law would not be in accord with the national transportation policy, and that section 5 (11) of the Interstate Commerce Act provides a way for the commission to apply the "paramount regulatory power" of Congress in the national interest despite the state statutes. The contract with respect to maintaining general offices at Palestine, Tex., however, could be held to require separate incorporation of the I.-G.N., and the 1948 plan makes the

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REVENUES AND EXPENSES OF RAILWAYS

MONTH OF JUNE AND SIX MONTHS OF CALENDAR YEAR 1949

Name of road		Av. mileage operated during period	Operating revenues			Operating Expenses					Operating ratio	Net from railway operation	Railway tax accruals	Net railway operating income	
			Freight	Passenger	Total (inc. misc.)	Maintenance of Way and structures	Maintenance of Equipment	Traffic	Transportation	Total				1949	1948
Pennsylvania-Reading Seashore Lines	June	386	492,147	320,809	847,719	163,930	65,261	12,591	595,438	857,901	102.4	—20,182	90,048	—245,279	—173,012
	6 mos.	386	2,881,259	1,202,257	4,238,384	1,223,031	1,039,362	65,004	3,384,803	5,896,179	139.1	—1,657,795	539,819	—2,905,375	—2,026,332
Pittsburg & Shawmut	June	97	236,510	.....	237,403	54,870	33,013	3,966	59,110	158,624	66.8	78,779	17,749	54,789	103,776
	6 mos.	97	1,198,905	.....	1,204,572	227,550	236,772	22,657	335,359	873,747	72.5	330,825	115,352	213,769	298,726
Pittsburgh & West Virginia	June	135	594,778	646	611,768	144,130	130,528	41,288	158,441	507,801	83.0	103,967	70,603	104,676	201,450
	6 mos.	135	3,977,588	646	4,096,169	807,925	829,428	251,180	1,058,996	3,151,681	76.9	944,488	504,860	728,297	926,544
Reading	June	1,324	8,179,039	600,251	9,247,813	1,654,410	1,917,228	134,381	3,724,862	7,727,891	83.6	1,519,922	796,627	757,109	1,858,511
	6 mos.	1,325	52,047,138	3,927,311	59,015,394	9,834,731	11,911,320	797,588	23,887,811	48,308,605	81.9	10,706,789	5,413,691	5,008,293	6,465,445
Richmond, Fredericksburg & Potomac	June	118	1,079,007	493,595	1,760,101	276,432	337,401	20,325	731,459	1,478,022	84.0	282,079	149,881	68,602	247,580
	6 mos.	118	7,525,074	3,302,273	12,218,957	1,964,327	2,014,952	129,580	5,260,699	10,163,569	83.2	2,055,388	1,059,281	457,301	1,437,966
Rutland	June	407	347,207	23,717	441,716	77,256	68,375	12,466	239,335	418,418	94.7	23,298	28,187	—25,239	—31,257
	6 mos.	407	2,087,924	172,462	2,703,046	513,970	548,420	86,490	1,532,026	2,791,217	103.3	—88,171	178,359	—373,121	—89,993
Sacramento Northern	June	271	139,086	.....	142,557	82,317	30,379	2,184	61,818	185,239	129.9	—42,682	11,814	—63,296	—26,203
	6 mos.	271	867,749	.....	897,851	524,118	130,330	12,791	390,426	1,110,854	123.7	—213,003	76,342	—351,584	—295,186
St. Louis-San Francisco	June	4,644	7,624,582	497,457	8,733,492	1,609,784	1,616,305	237,043	3,353,877	7,202,803	82.5	1,530,689	806,240	706,600	1,336,873
	6 mos.	4,645	44,257,620	3,340,130	51,338,195	9,112,612	9,145,477	1,437,803	21,212,236	43,317,197	84.4	8,020,998	4,350,509	3,665,406	4,558,812
St. Louis, San Francisco & Texas	June	159	325,641	11,799	359,195	69,877	43,128	17,079	178,407	318,090	88.6	41,105	7,825	—18,947	67,922
	6 mos.	159	2,033,282	65,892	2,213,542	361,079	209,450	99,351	980,030	1,711,767	77.3	501,775	135,770	122,619	215,534
St. Louis Southwestern	June	1,569	4,345,961	59,281	4,587,058	741,354	636,532	149,022	1,529,808	3,237,321	70.6	1,349,737	606,708	523,037	1,036,307
	6 mos.	1,569	28,152,753	353,145	29,548,353	3,956,811	4,019,028	858,171	9,816,662	19,693,207	66.6	9,855,146	4,103,899	4,446,293	5,873,034
Seaboard Air Line	June	4,149	7,741,226	1,021,716	9,415,937	1,608,994	1,892,219	313,963	3,508,238	7,754,209	82.4	1,661,728	900,352	763,999	1,617,036
	6 mos.	4,152	53,139,033	8,606,338	66,290,828	10,977,361	12,022,522	1,947,493	25,146,809	53,247,826	80.3	13,043,002	6,171,967	5,694,424	7,509,468
Southern Ry	June	6,411	13,824,867	1,701,608	16,927,844	2,517,846	3,439,491	361,166	6,317,205	13,399,525	79.2	3,528,319	1,988,455	1,609,263	2,127,571
	6 mos.	6,411	90,338,809	9,155,030	107,538,466	16,304,339	20,850,249	2,196,493	42,091,972	86,067,040	80.0	21,471,426	10,440,268	9,759,124	13,728,164
Alabama Great Southern	June	316	1,093,561	110,868	1,297,373	214,849	288,402	28,243	439,390	1,024,789	79.0	272,584	219,897	53,308	191,884
	6 mos.	316	6,864,409	601,647	8,068,582	1,237,166	1,721,378	179,057	3,831,475	6,296,969	78.0	1,771,613	1,114,808	776,261	1,167,614
Cinn., New Orleans & Texas Pacific	June	337	2,671,912	147,653	2,992,345	373,473	560,863	63,379	842,214	1,949,638	65.2	1,042,707	492,414	551,852	723,714
	6 mos.	337	16,755,624	1,181,437	18,945,760	2,416,434	3,469,074	363,141	5,738,056	12,637,331	66.7	6,308,429	3,100,513	3,477,130	4,077,171
Georgia Southern & Florida	June	397	451,426	21,060	521,702	145,954	63,280	7,338	196,221	424,984	81.5	96,718	38,029	—17,398	41,356
	6 mos.	397	2,873,434	491,806	3,702,494	858,569	363,631	43,974	1,272,065	2,635,802	71.2	1,066,692	311,462	270,683	282,092
New Orleans & Northeastern	June	204	654,296	91,973	794,487	123,713	116,083	15,615	185,085	480,405	60.5	314,082	137,536	131,942	238,595
	6 mos.	204	4,353,255	377,431	5,026,223	871,338	533,064	109,988	1,217,068	2,970,404	59.1	2,055,819	916,200	856,614	1,246,777
Southern Pacific	June	8,171	32,401,370	3,746,694	38,856,782	4,571,800	7,027,106	763,797	14,836,451	29,063,235	74.8	9,793,547	4,191,765	4,000,591	4,583,280
	6 mos.	8,172	167,672,396	20,077,760	202,400,477	26,941,998	41,095,393	4,382,711	84,997,724	168,897,519	83.4	33,502,958	17,721,381	10,311,762	17,307,818
Texas & New Orleans	June	4,316	8,286,641	802,600	9,704,759	1,539,082	1,394,739	212,396	3,497,372	7,100,969	73.2	2,603,790	1,068,173	1,084,174	1,092,577
	6 mos.	4,316	49,884,273	4,369,553	57,924,923	9,074,685	8,609,474	1,311,931	22,335,632	44,176,769	76.3	13,748,154	5,893,317	5,134,403	7,324,960
Spokane, Portland & Seattle	June	945	1,857,742	115,573	2,092,647	465,023	340,071	21,692	690,411	1,600,492	76.5	492,155	173,955	220,716	300,965
	6 mos.	945	10,285,953	531,193	11,500,203	2,510,767	1,497,657	131,208	4,281,988	8,942,587	77.8	2,557,616	255,350	1,006,399	959,240
Tennessee Central	June	286	294,170	3,442	314,272	72,198	49,679	10,321	125,152	276,248	87.9	38,024	25,547	—134	32,593
	6 mos.	286	2,075,592	16,879	2,207,266	401,581	323,669	59,591	910,029	1,802,100	81.6	405,166	157,898	109,675	—6,731
Texas & Northern	June	8	73,830	.....	105,318	4,436	9,501	308	37,715	56,619	53.8	48,699	18,481	25,955	.....
	6 mos.	8	541,027	.....	650,781	28,715	50,056	2,319	185,621	301,886	46.4	348,895	116,079	162,090	.....
Texas & Pacific	June	1,854	4,288,333	444,693	5,194,821	723,272	778,864	163,271	1,917,152	3,860,034	74.3	1,334,787	551,014	623,494	726,234
	6 mos.	1,854	26,708,564	2,513,588	31,801,619	4,343,517	4,990,130	996,422	12,619,600	24,699,925	77.7	7,101,694	2,473,131	3,330,420	3,880,154
Texas Mexican	June	162	210,683	.....	235,932	57,014	23,639	6,142	64,424	165,242	70.0	70,690	22,570	29,984	23,629
	6 mos.	162	1,405,999	.....	1,554,844	298,730	149,078	36,125	420,963	992,012	63.8	562,832	215,650	234,316	200,549
Toledo, Peoria & Western	June	239	373,659	11	378,370	74,760	48,212	33,369	104,486	282,606	74.7	95,764	36,600	30,005	47,262
	6 mos.	239	2,293,625	129	2,327,126	420,827	130,015	201,572	612,533	1,559,381	67.0	767,745	304,154	324,410	321,236
Union Pacific	June	9,722	26,825,464	3,593,136	33,356,058	6,687,621	6,140,264	670,305	11,166,597	26,518,250	79.5	6,837,808	4,114,084	1,574,185	4,172,448
	6 mos.	9,726	149,420,217	15,066,752	180,444,677	33,388,221	35,854,932	4,710,771	71,011,304	156,325,787	86.6	24,118,890	18,595,575	—512,587	12,842,846
Utah	June	111	98,098	.....	98,153	24,911	54,491	670	41,859	129,520	132.0	—31,365	12,676	—29,962	13,312
	6 mos.	111	884,646	.....	886,210	176,247	322,693	4,233	417,090	966,236	109.0	—80,026	80,125	—129,668	—23,544
Virginian	June	663	2,368,443	4,747	2,458,290	445,633	740,838	39,063	615,566	1,919,225	78.1	539,065	288,700	384,687	1,068,601
	6 mos.	663	17,679,071	24,723	18,340,106	2,408,682	4,717,707	241,821	4,278,126	12,117,050	66.1	6,223,056	2,920,200	4,099,471	3,824,012
Wabash	June	2,393	6,453,290	443,077	7,386,912	1,281,214	1,079,148	233,798	3,127,637	6,037,342	81.7	1,349,570	487,161	469,695	1,206,010
	6 mos.	2,393	38,355,363	2,348,252	44,136,306	6,959,800	6,646,591	1,520,942	19,429,337	36,423,162	82.5	7,713,144	3,133,931	2,623,014	5,926,579
Ann Arbor	June	294	566,194	4,257	593,461	101,940	108,535	23,087	286,334	537,943	90.6	55,518	31,836	1,746	123,623
	6 mos.	294	3,673,824	17,097	3,768,076	516,927	664,377	132,959	1,729,293	3,138,321	83.3	629,755	310,002	232,637	387,273
Western Maryland	June	836	3,273,005	12,804	3,403,547	552,023	767,687	69,182	1,021,179	2,551,940	75.0	851,607	446,000	516,069	867,277
	6 mos.	837	21,381,332	62,273	22,314,685	2,986,414	4,526,298	426,761	6,672,906	15,446,673	69.2	6,868,012	3,334,000	4,077,505	4,021,298
Western Pacific	June	1,195	3,103,352	310,838	3,550,227	710,286	545,794	182,482	1,163,931	2,798,776	78.8	751,451	331,407	330,262	551,531
	6 mos.	1,195	18,165,583	1,399,456	20,161,898	3,407,976	3,470,318	1,011,197	7,373,814	16,559,265	82.1	3,602,613	1,650,037	1,570,015	2,077,435
Wheeling & Lake Erie	June	506	2,707,887	778	2,879,564	452,953	477,221	61,580	859,512	1,928,448	67.0	951,116	559,537	627,048	927,168
	6 mos.	506	16,608,078	789	17,405,865	2,363,215	2,856,205	391,284	5,247,298	11,361,273	65.3	6,044,592	3,307,715	3,965,209	4,076,975
Wisconsin Central	June	1,051	2,162,739	73,655	2,387,737	478,459	314,790	61,182	900,196	1,841,553	77.1	546,184	176,895	248,364	487,755
	6 mos.	1,051	12,530,372	276,418	13,556,883	1,958,663	2,065,722	361,154	5,860,244	10,754,263	79.3	2,802,620	875,465	1,158,332	1,830,330

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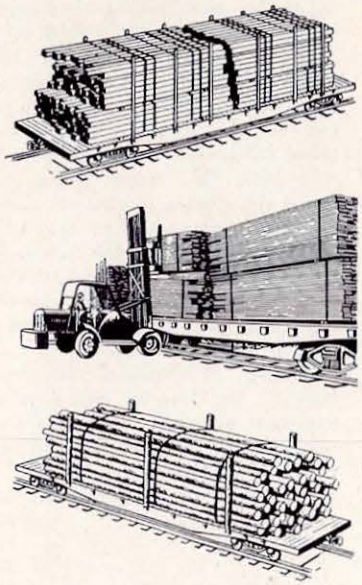

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same provision as the 1944 plan for this possibility.

After reviewing the evidence and predictions as to future earnings of the system, the majority found that a "reasonable future normal year's earnings" available for interest payment, after federal taxes, will approximate $25,450,000 for the new system. This compares with annual charges under the 1948 plan, including preferred dividends but before common dividends, of $22,729,278, and with actual earnings available for interest of $40,654,079 in 1948, and average annual earnings for the 5-year period 1937-41 of $15,455,508 and for the 7-year period 1942-48 of $42,854,927.

P.R.R. Booklet Reviews Modern Motive Power

The Pennsylvania, long a pioneer in the development of new and improved types of locomotives, each assigned to the services for which best adapted, now utilizes steam locomotives to provide half its transportation service, Diesel-electric locomotives to provide 32 per cent, and electric locomotives to provide 18 per cent. In a little booklet entitled Modern Power for Today's Trains, the railroad presents illustrations and short descriptions of representative locomotives used in its passenger and freight service. In addition, there is a brief explanation of how locomotives are classified, a view of the interior of a Diesel-electric locomotive cab, with the parts named and numbered, views of shop interiors and the inductive trainphone system used by the railroad.

Over 30,000 Employees Idled By Reduced Coal Loadings

Because of reduced coal loadings, resulting from union restrictions limiting miners to three days' work each week, 14 large coal-carrying roads have furloughed 30,202 employees, or 5.3 per cent of their total personnel, J. Carter Fort, vice-president of the Association of American Railroads, told a subcommittee of the Senate committee on banking and currency on August 11.

The subcommittee is investigating the effect of a proposed coal "czar" appointment and the 3-day work week in the coal mines on independent producers and consumer prices, and Mr. Fort appeared before it to describe the curtailment of business in the transportation of coal and the resulting hardships to the railroads and their employees. He told the subcommittee that bituminous coal represented nearly 30 per cent of the total freight traffic of Class I roads, and that coal revenue amounted to $1,179,834,000, or 14.1 per cent of their total freight revenue in 1948. "Any stoppage or substantial reduction in production and distribution of coal affects the roads, reduces their traffic and earnings, and forces them to reduce their own personnel," he said.

Mr. Fort gave the committee statistics as to rail movement of coal in the first 30 weeks of 1949, dividing the production and distribution into three periods:

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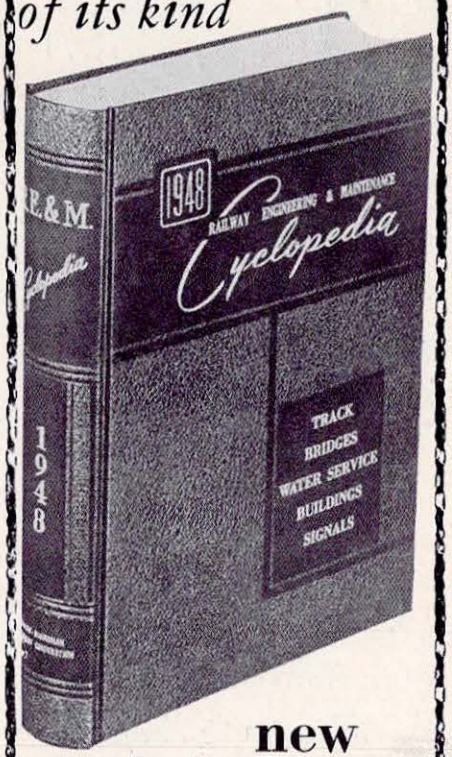

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first, the "normal" period (22 weeks); second, the "labor holiday" period (4 weeks); and third, the 3-day-week period (4 weeks). Weekly coal loadings during the first period averaged 178,068 cars; the second period averaged only 34,899 cars; and the 3-day period averaged 104,872 cars, he said. Thus, the 3-day schedule has reduced weekly car loadings by 41.1 per cent, he added.

Citing statistics of the Bureau of Mines, Mr. Fort said the 3-day work week reduced production of bituminous coal and lignite in the Pocahontas region by 44.8 per cent, in the Eastern and Southern regions by 37.5 per cent and in the Western region by 14.8 per cent.

As to the effect on railroad revenues and expenses, Mr. Fort said in 1948 the roads received an average of $2.74 per ton for transporting bituminous coal and when this is applied to the 3,659,800 tons per week reduction caused by the 3-day week, freight revenues decline approximately $10,028,000 weekly. "When traffic declines," he added, "roads find it difficult, if not impossible, to reduce train operation and other expense in proportion. The result is an increase in the cost to the roads of moving the average unit" of freight.

As to idle coal cars, Mr. Fort said that the average surplus had increased from 21,510 hoppers under the normal week to 49,600 cars under the 3-day week. Placing the cost of a modern hopper at $4,000, he said this "means that freight car investment of $112,000,000 or more has been made idle."

The reduction in coal freight revenue experienced by the 14 large coal carrying roads, Mr. Fort told committee, totals $7,198,000 per week, or at the rate of $375,000,000 per year.

Dr. C. S. Duncan to Retire

Dr. Carson S. Duncan will retire on August 31 as economist of the Association of American Railroads. The Bureau of Railway Economics of the A.A.R. will assume Dr. Duncan's duties in the field of economics, A.A.R. President Faricy announced.

Dr. Duncan received his higher education at the University of Chicago, where he later taught economics and business research. He served in World War I as statistical expert with the U.S. Shipping Mission in London and at the Paris Peace Conference. Later he became head of the research staff of the National Industrial Conference Board.

In 1922, Mr. Duncan joined the staff of the Association of Railway Executives as economist, and when that organization was merged with the A.A.R. in 1934 he became economist and director of competitive transportation research of the A.A.R. The author of several books in the field of economics and statistics, including "A National Transportation Policy," Dr. Duncan has also written numerous pamphlets and studies. He recently served as a member of the Advisory Tax Committee for the House Ways and Means Committee of the 80th Congress.

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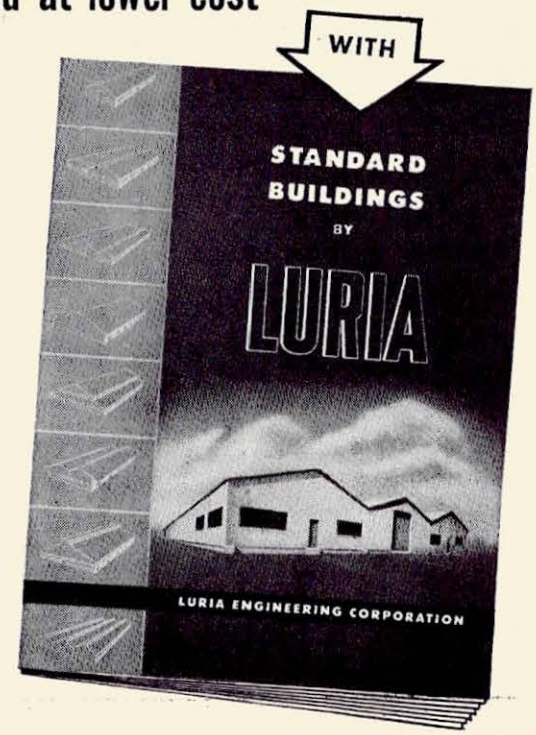

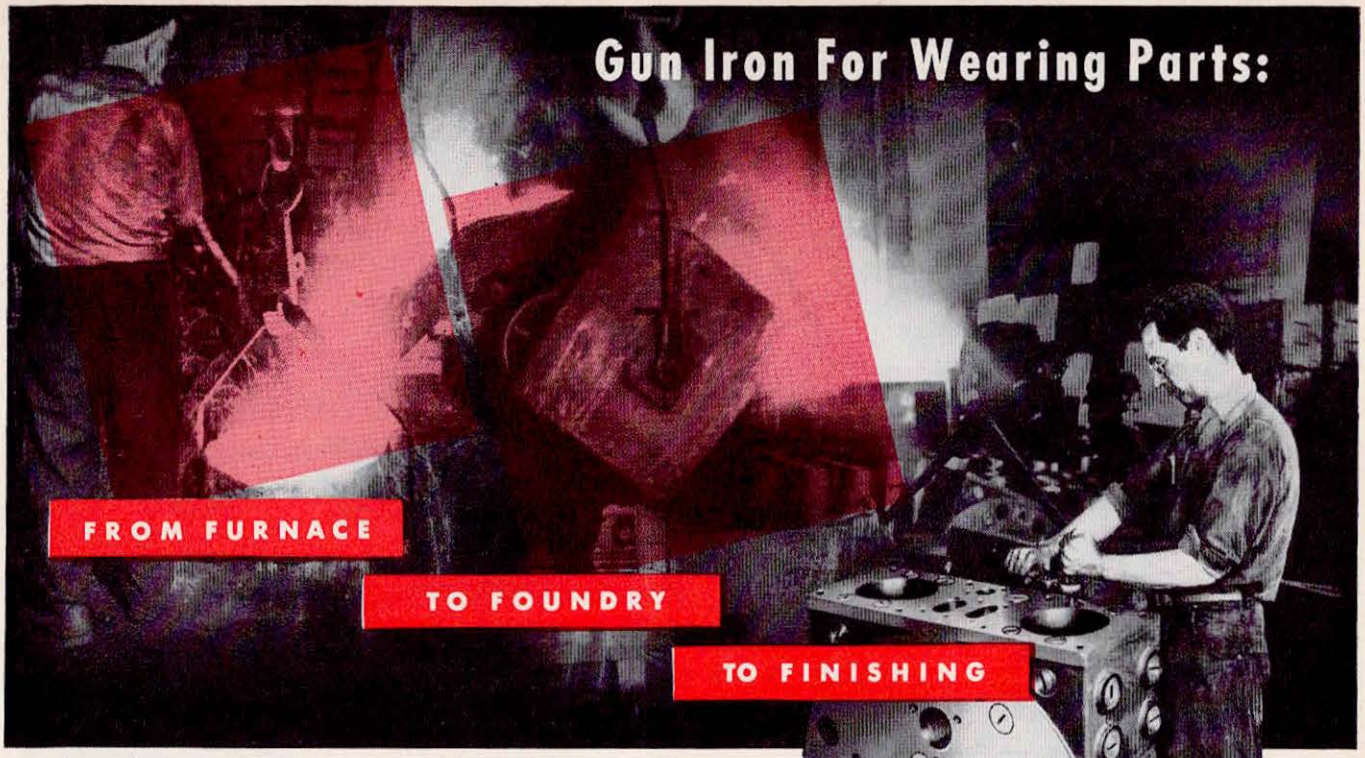

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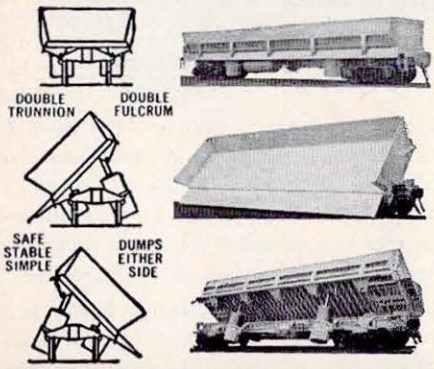

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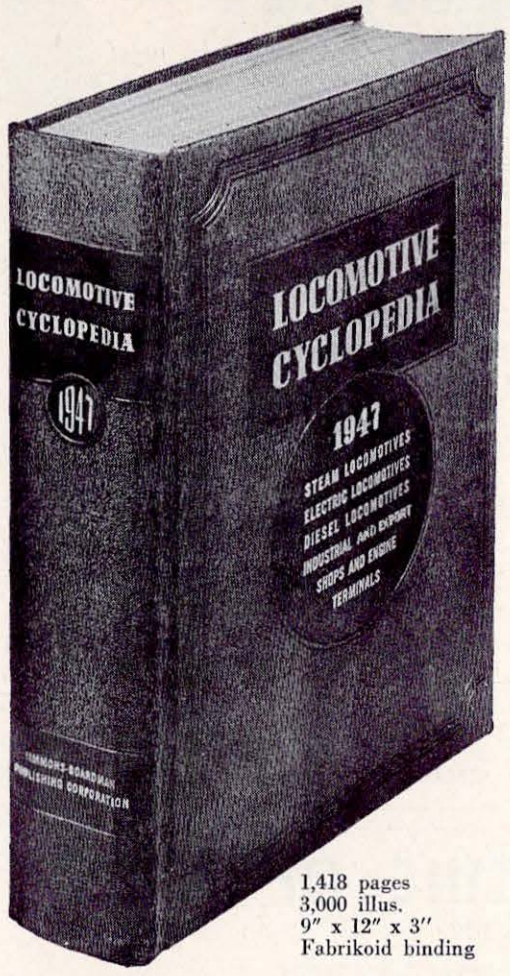

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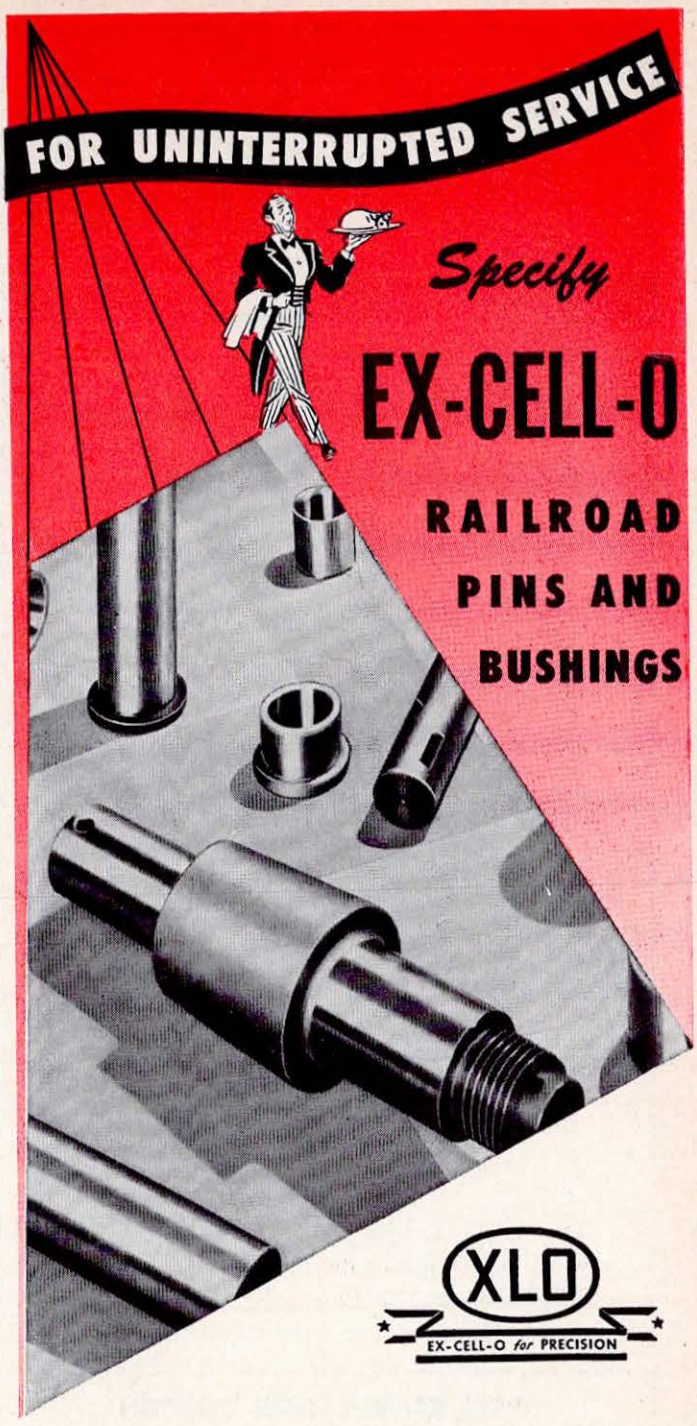

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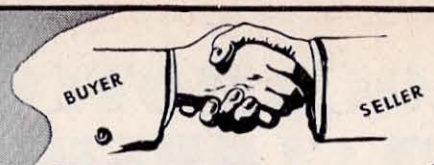

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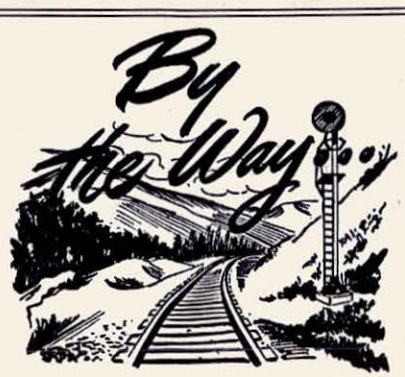

"Mr. Jones will see you now."

Welcome words! But in the railway industry the reply is just as apt to be, "Mr. Jones is out of town", or "Mr. Jones is tied up for the afternoon."

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LESS COST PER MILE

To protect lading and add miles of extra pay-life to freight cars in service install Symington Snubbers—SLS (2½" long travel) where space permits, or SBS (1 1/16" travel) for use with A.A.R. Standard Springs. They prevent harmonic spring action, control car sway, thus protect freight cars from damage resulting from vertical shocks. Substantial savings are also effected by protection to roadbed.

WRITE FOR BULLETIN S-413

THE SYMINGTON-GOULD CORPORATION

Works: DEPEW, NEW YORK

New York • Chicago • St. Louis • Boston • San Francisco • *In Canada:* ADANAC SUPPLIES, LTD., Montreal, Que.

No other bearing with so much to offer!

1. Hard on the outside — tough on the inside! Rolls and races of Timken® tapered roller bearings are made of the finest steel ever developed for railroad roller bearings—our own Timken fine alloy steel. It is case-carburized to give a hard, wear resistant surface, combined with a tough inner core to withstand shock.

2. Simplicity itself! A bearing which in itself takes *both* radial and thrust loads! No special thrust blocks or bearings to bother about.

3. Rolls are "made for each other". Rolls are uniformly sized for their particular cup and cone. Bearings last longer because each roll carries its full share of the load.

4. Rolls stay put—for life! Rolls are permanently retained in the bearing assembly. They can't fall out during bearing changes and pick up dirt and grit.

5. No roll skidding or skewing! Wear is reduced, bearing life prolonged because the tapered rolls *can't* skid or skew. Race ribs keep the rolls in positive alignment.

6. Rolls can't slide laterally! Due to its tapered design there's no lateral sliding friction in a Timken bearing.

7. No adjustments needed when wheel and axle assembly are installed in truck. No separate thrust bearing to be shimmed up.

8. Axle inspection simplified! Timken bearings are pressed off with the wheel. No further work necessary before magnafluxing.

9. Use either oil or grease! Closures are designed to effectively retain either oil or grease.

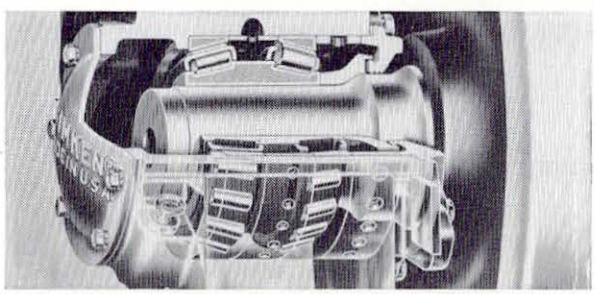
10. Polished axle ends aren't necessary! No separate thrust block to bear against the axle ends.

11. Special axle length tolerances not required! No need to pay machining extras for close tolerances.

No other bearing so fully proved!

USED ON OVER 5000 PASSENGER CARS!

More new passenger cars roll on Timken bearings than on any other make of anti-friction bearings. That goes for freight cars too—over 3900 of them. And Timken is the one anti-friction bearing used almost exclusively for steam locomotive driving axles and crank pins—the toughest bearing jobs in the railroad industry. Let us help you with your bearing applications. Write The Timken Roller Bearing Company, Canton 6, Ohio. Cable address: "TIMROSCO".



Timken bearing application for passenger cars

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TIMKEN

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